9 ENVIRONMENTAL PERMITS AND OTHER COMPLIANCE REQUIREMENTS

9.1 INTRODUCTION

This chapter identifies the major laws, regulations, Executive Orders, and compliance instruments that apply to the Army ACWA activities under the no action and other alternatives. It covers various federal environmental statutes that impose environmental protection and compliance requirements upon the Army. It also assesses federal authorities to determine whether the enforcement and implementation of any environmental protection programs have been delegated to the states, and it covers these regulations as well. It is the Army's policy to conduct its operations in an environmentally safe manner in compliance with all applicable statutes, regulations, and standards (Army Regulation [AR] 200-1). The Army has established an extensive system of standards and requirements through its regulations and guidance to ensure the safe operation of its facilities. Although this section does not address pending legislation or regulations that may become effective in the future, the Army recognizes that the regulatory environment is rapidly changing and that the construction and operation of any future ACWA facilities must be conducted in compliance with the applicable statutes, regulations, and standards that are in effect at that time.

Under the *National Environmental Policy Act of 1969* (NEPA) (*United States Code*, Volume 42, Section 4321 and following sections [42 USC 4321 et seq.]), federal agencies are required to prepare an environmental impact statement (EIS) for proposed major federal actions that might significantly affect the quality of the human environment. Such major federal actions may include:

> "broad Federal actions such as the adoption of new agency programs or regulations. Agencies shall prepare statements on broad actions so that they are relevant to policy and are timed to coincide with meaningful points in agency planning and decision making." (*Code of Federal Regulations*, Title 40, Section 1502.4(b) [40 CFR 1502.4(b)]).

The Army has determined that the development of a program for the pilot study for ACWA technologies would be such a major federal action. Therefore, this EIS has been prepared in accordance with Council on Environmental Quality regulations (40 CFR Parts 1500–1508) and the Army NEPA implementing regulations (32 CFR Part 651; AR 200-2).

Executive Order 12088, *Federal Compliance with Pollution Control Standards,* requires federal agencies (including the U.S. Army) to comply with applicable administrative and procedural pollution control standards established by, but not limited to, the *Resource Conservation and Recovery Act* (RCRA) and *Toxic Substances Control Act* (TSCA) (Section 9.1), *Clean Air Act* (CAA) (Section 9.2), *Noise Control Act* (Section 9.3), and *Clean*

Water Act (CWA) and *Safe Drinking Water Act* (SDWA) (Section 9.5). Section 9 also covers other compliance requirements, including the *Emergency Planning and Community Right-to-Know Act of 1986* and *Hazardous Material Transportation Act* (Section 9.4), ecological resources requirements (e.g., *Endangered Species Act*) (Section 9.6), cultural and paleontological resources requirements (Section 9.7), Executive Orders (Section 9.8), Army regulations (Section 9.9), and the Chemical Weapons Convention (CWC) (Section 9.10).

9.2 WASTE MANAGEMENT

9.2.1 Requirements under Various Laws

9.2.1.1 Requirements of the *Solid Waste Disposal Act*, as Amended by the *Resource Conservation and Recovery Act* and *Hazardous Solid Waste Amendments of 1984*

The generation, accumulation, treatment, storage, and disposal of nonhazardous and hazardous wastes are regulated under the *Solid Waste Disposal Act* (SWDA), as amended by the *Resource Conservation and Recovery Act* (RCRA) (42 USC 6901 et seq.) and the *Hazardous Solid Waste Amendments of 1984* (HSWA). Under Section 3006 of the SWDA, any state that seeks to administer and enforce a hazardous waste program pursuant to RCRA may apply for U.S. Environmental Protection Agency (EPA) authorization of such a program. Approved state programs are not static, and as new federal regulations, limitations, and restrictions are promulgated by the EPA, state programs must be revised in response to such changes. Prior to HSWA, changes to the federal requirements were not enforced in an authorized state until the state's program was appropriately modified and approved by the EPA. Now, the EPA enforces HSWA requirements in authorized states until the state receives approval under RCRA (Section 3006(g)). Alabama, Arkansas, Colorado, and Kentucky have EPA-approved state RCRA programs and are responsible for RCRA regulation and enforcement in their states.

9.2.1.2 *Toxic Substances Control Act* Requirements

TSCA provides for the regulation of polychlorinated biphenyls (PCBs) (15 USC 2605(e)). The EPA has promulgated regulations governing the use, marking, storage, and disposal of wastes containing or contaminated with PCBs (40 CFR Part 761). The EPA has exclusive jurisdiction over PCB disposal, although some states also regulate the storage of TSCA PCB wastes as hazardous wastes. Wastes containing more than 50 parts per million (ppm) of PCBs generated during the construction or operation of a facility must be stored and disposed of properly. Storage facilities must meet certain standards (40 CFR Part 761, Subpart D). PCB wastes must be labeled and marked properly (40 CFR Part 761, Subpart C). PCB-contaminated

waste must be disposed of in a licensed incinerator, in a chemical waste landfill, or by an alternative method approved by the EPA (40 CFR 761, Subpart D). Off-site shipments of waste PCBs must be manifested to an EPA-approved TSCA disposal facility, and the generator must receive a Certificate of Destruction from the disposal facility upon completion of destruction or disposal (40 CFR 761, Subpart K). Any contamination from a spill of PCB wastes must be remediated in accordance with specific requirements (40 CFR 761, Subpart G).

BGAD, ANAD, and PBA currently store M55 rockets containing nerve agents. M55 rocket shipping/firing tubes contain PCBs. A "PCB article" is any manufactured article, other than a PCB container, that contains PCBs and whose surface(s) has (have) been in direct contact with PCBs. PCB articles with PCB concentrations of 500 ppm or more must be disposed of in an EPA-approved TSCA incinerator, an EPA-approved TSCA chemical landfill, or an EPA-approved alternative treatment facility (40 CFR 761.60(b)(6) and 761.60(e)).

PCB articles that are no longer intact may be disposed of as "PCB bulk product waste" (40 CFR 761.50(b)(2)). PCB bulk product waste is defined as waste in a nonliquid state containing PCBs at any concentration that was derived from manufactured products in which the PCB concentration at the time of designation for disposal was more than 50 ppm. Bulk product waste can be disposed of (1) through decontamination using EPA-approved methods (applicable only to water, organic liquids, nonporous surfaces, and concrete), (2) in an EPA-approved TSCA incinerator, (3) on an EPA-approved TSCA chemical waste landfill, (4) in a state-permitted RCRA landfill, (5) in an EPA-approved alternative TSCA treatment facility, or (6) under an EPA-issued TSCA PCB Coordinated Approval Order (applicable only to facilities already holding TSCA approval or equivalent) (40 CFR 761.62(a)(1)). Disposal of PCB bulk product waste is based on the risk from the waste once it is disposed of (40 CFR 761.50(4)).

If M55 rocket tubes, as PCB articles, are to be treated in an ACWA facility, the facility would have to obtain approval from the EPA. (Note: M55 rockets contain nerve agent only and therefore would not be treated in a Neut/Bio facility.) Since none of the proposed ACWA pilot facilities are incinerators or chemical landfills, the facilities would require EPA approval as alternative treatment facilities. A written request to use an alternative method for destroying PCBs must be made to the EPA Regional Administrator or, if disposal is to occur in more than one EPA Region, the EPA Director of National Program Chemicals Division. If it can be shown that the alternative method does not present an unreasonable risk of injury to health or the environment and provides PCB destruction equivalent to disposal in an EPA-approved incinerator or high-efficiency boiler, the Director, at his or her discretion, may approve the use of the alternative method (40 CFR 761.60(e)). Similarly, if the shredded firing tubes are considered PCB bulk product waste, any facility that would treat this waste by using an alternative method must apply in writing to the EPA Regional Administrator or, for disposal occurring in more than one EPA Region, the EPA Director of National Program Chemicals Division (40 CFR 761.62(a)(4)). If the EPA finds that the alternative method will not pose an unreasonable risk of injury to health or the environment, it may issue a written decision approving the alternative disposal method.

Alternatively, an ACWA facility could receive EPA approval to operate as a research and development (R&D) facility for PCB disposal technologies (40 CFR 761.60(i)(2) or 761.60(j)). R&D activities include demonstrations for commercial PCB disposal approvals, predemonstration tests, tests of major modifications to previously approved PCB disposal technologies, treatability studies for PCB disposal technologies that have not been approved, development of new disposal technologies, and research on chemical transformation processes including, but not limited to, biodegradation (40 CFR 761.3). A "treatability study" is a study in which PCB waste is subjected to a treatment process to determine (1) whether the waste is amenable to the treatment process, (2) what pretreatment (if any) is required, (3) the optimal process conditions needed to achieve the desired treatment, (4) the efficiency of a treatment process for a specific type of waste, or (5) the characteristics and volumes of residuals from a particular treatment process (40 CFR 761.3). Treatment is a form of disposal, and a treatability study may not be used to commercially treat or dispose of PCB waste (40 CFR 761.3). An application for authorization for R&D using 500 lb (266.8 kg) or more of PCB material (regardless of PCB concentration) must be submitted to the Director of National Program Chemicals Division (40 CFR 761.60(i)(2)).

R&D for PCB disposal may be conducted without prior written approval from the EPA if the amount of PCB-containing material treated annually by the facility during R&D for PCB disposal activities does not exceed 500 gal or 70 ft^3 of liquid or nonliquid PCBs and if the PCB concentration does not exceed a maximum of 10,000 ppm (40 CFR 761.60(j)). These self-implementing R&D disposal activities may not exceed the above limits or last longer than one calendar year, unless specific EPA approval has been granted.

9.2.2 Types of Waste That Would Be Generated

9.2.2.1 ACWA Facility Construction

During construction of an ACWA facility, nonhazardous wastes (e.g., construction debris, nonhazardous paint waste) and hazardous wastes (e.g., hazardous paint, waste, solvent waste) would be generated. No wastes contaminated with chemical agents would be generated.

9.2.2.2 ACWA Facility Operations

Neutralization/SCWO. Solid wastes would be generated during the operation of the pilot Neut/SCWO process. They would include decontaminated scrap metal and brine salts that could contain metals. Nonprocess wastes would also be generated, including personal protective equipment (PPE), spent carbon filters, spent carbon abrasive grit, dunnage, pallets, and decontamination water. These wastes could be hazardous or nonhazardous, depending on the

ultimate RCRA characterization. In addition, wastes generated during the Neut/SCWO process at ANAD, BGAD, or PBA (PCD does not have M55 rockets) could be contaminated with PCBs. Currently, the Army does not intend to dispose of any waste materials generated by the treatment process on site (Kimmel et al. 2001).

The decontaminated scrap metal would be recycled. Under RCRA, scrap metal that is going for recycling is not a solid waste, and therefore it is not a hazardous waste by definition. If the metals could not be recycled, depending on their ultimate RCRA characterization, they would be disposed of off site in a nonhazardous (RCRA Subpart D) waste landfill or in a hazardous (RCRA Subpart C) waste landfill. Before disposal, the decontaminated scrap metal would also have to meet Army regulations for decontamination and disposal (see Section 9.9).

Only a small quantity of liquid wastes will be generated during the operation of the pilot Neut/SCWO process. Brine liquids from the Neut/SCWO units would be recirculated after the salts were extracted. Other liquids, such as spent decontamination solutions and laboratory wastes, would be fed to the SCWO units. Those liquid wastes that would be generated from the treatment process would be contained and managed as hazardous or nonhazardous waste, as applicable. The only liquid waste stream directly discharged at the Neut/SCWO ACWA facility would be sanitary waste.

Neutralization/Biotreatment. Solid wastes would be generated during the operation of the pilot Neut/Bio process. They would include decontaminated scrap metal, compacted biosolids from the bioreactor system (i.e., biomass, absorbed metals, grit, dirt), and brine salts containing metals. (See Sections 4.4, 5.4, 6.4, and 7.4.) Similar to scrap metal from the pilot Neut/SCWO facility, scrap metal would be recycled if possible.

Nonprocess wastes would also be generated, including PPE, spent carbon filters, spent carbon abrasive grit, dunnage, pallets, and decontamination water. These wastes could be either hazardous or nonhazardous, depending on the ultimate RCRA characterization. Currently, the Army does not intend to dispose of any waste materials generated by the treatment process on site (Kimmell et al 2001).

Only a small quantity of liquid wastes would be generated during the operation of the pilot Neut/Bio process. The liquids from biotreatment would be evaporated, condensed, and recirculated. Other liquids, such as spent decontamination solutions and laboratory wastes, would be fed back into the Neut/Bio system. Those liquid wastes that would be generated from the treatment process would be contained and managed as hazardous or nonhazardous waste, as applicable. The only liquid waste stream directly discharged at the Neut/Bio facility would be sanitary waste.

Neutralization/GPCR/TW-SCWO. Solid wastes would be generated during the operation of the pilot Neut/GPCR/TW-SCWO process. They would include decontaminated scrap metal and brine salts that could contain metals. (See Sections 4.4, 5.4, 6.4, and 7.4.) Nonprocess wastes would also be generated, including PPE, spent carbon filters, spent carbon abrasive grit, dunnage, pallets, and decontamination water. These wastes could be either hazardous or nonhazardous waste, depending on the ultimate RCRA characterization. In addition, wastes generated during the Neut/GPCR/TR-SCWO process at ANAD, BGAD, or PBA could be contaminated with PCBs. Currently, the Army does not intend to dispose of any waste materials generated by the treatment process on site (Kimmell et al. 2001).

The decontaminated scrap metal would be recycled. Under RCRA, scrap metal that is going for recycling is not a solid waste, and therefore it is not a hazardous waste by definition. If the metals could not be recycled, depending on their ultimate RCRA characterization, they would be disposed of off site in a nonhazardous waste landfill or in a permitted hazardous waste landfill. Before disposal, the decontaminated scrap metal would also have to meet Army regulations for decontamination and disposal (see Section 9.9).

Only a small quantity of liquid wastes would be generated during the operation of the pilot Neut/GPCR/TW-SCWO process. Brine liquids from the Neut/GPCR/TW-SCWO units would be recirculated after the salts were extracted. Other liquids, such as spent decontamination solutions and laboratory wastes, would be fed to the SCWO units. Those liquid wastes that would be generated from the treatment process would be contained and managed as hazardous or nonhazardous waste, as applicable. The only liquid waste stream directly discharged at the Neut/GPCR/TW-SCWO facility would be sanitary waste.

The Neut/GPCR/TW-SCWO process treats dunnage and metal parts in a thermal reduction batch processor, which uses a flame-heated batch evaporator to volatilize organic materials to the main GPCR process. The technology provider indicates that recovered gaseous emissions from the GPCR might be able to be used as auxiliary fuel for the boiler that is used to produce the heated water and steam that is necessary for other components of the process. The re-use of these gaseous emissions as an auxillary fuel might require the boiler, depending on design and fuel characteristics, to be classified as a RCRA boiler or industrial furnace (BIF), which has additional regulatory operational and emission standards (40 CFR 266, Subpart H).

Electrochemical Oxidation. Solid wastes would be generated during the operation of the pilot Elchem Ox process. They would include decontaminated scrap metal, dilute nitric acid by-product, reclaimable silver, inorganic salts, and decontaminated dunnage (see Sections 4.4, 5.4, 6.4, and 7.4). Nonprocess wastes would also be generated, including PPE, spent carbon filters, spent carbon abrasive grit, pallets, and decontamination water. These wastes could be either hazardous or nonhazardous waste, depending on the ultimate RCRA characterization. In addition, wastes generated during the Elchem Ox process at ANAD, BGAD, or PBA could be contaminated with PCBs. Currently, the Army does not intend to dispose of any waste materials generated by the treatment process on site (Kimmell et al. 2001).

The decontaminated scrap metal would be recycled. Under RCRA, scrap metal that is going for recycling is not a solid waste, and therefore it is not a hazardous waste by definition. If the metals could not be recycled, depending on their ultimate RCRA characterization, they would be disposed of off site in a nonhazardous waste landfill or in a permitted hazardous waste landfill. Before disposal, the decontaminated scrap metal would also have to meet Army regulations for decontamination and disposal (see Section 9.9).

The slurry from an Elchem Ox unit is treated with HCl to precipitate silver as AgCl before being heated in the 5X evaporator oven. The material is then sent off site for reclamation. In addition, silver chloride is precipitated when mustard agent is exposed to the nitric acid and silver nitrate. A hydrocyclone is used to remove the silver chloride from the recirculating liquor. The silver chloride is accumulated in a settling vessel and discharged into an oven for 5X treatment. The silver chloride is then removed as a solid cake for silver reclamation off site. Under RCRA, recyclable materials that are reclaimed in order to recover economically significant amounts of gold, silver, platinum, iridium, osmium, rhodium, ruthenium, or any combination of these are not regulated as hazardous waste (except for notification requirements, manifesting, and maintaining records to demonstrate these materials are not being accumulated speculatively).

Only a small quantity of liquid wastes would be generated during the operation of the pilot Elchem Ox process. Liquid waste streams from the Elchem Ox units would be recirculated. Excess dilute nitric acid generated in the NO_X reformer circuit that could not be recirculated would be neutralized and disposed of off site. Concentrated nitric acid would either be recirculated or used commercially. Those liquid wastes that would be generated and removed from the treatment process would be contained and managed as hazardous or nonhazardous waste, as applicable. The only liquid waste stream directly discharged at the Elchem Ox facility would be sanitary waste.

9.2.2.3 No Action

Wastes generated during ongoing storage activities would include nonhazardous waste (e.g., pallets, nonhazardous cleaning solvents), hazardous waste (e.g., spent paints, hazardous cleaning solvents), and agent-contaminated waste (e.g., PPE, decontamination water). (See Sections 4.4, 5.4, 6.4, and 7.4.)

9.2.3 ANAD

Alabama has promulgated nonhazardous solid waste regulations (*Alabama Administrative Code Revised* [Admin. Code R.] 420-3-5 et seq.). Under these regulations, anyone operating a facility for solid waste disposal where processing, treatment, storage, or final disposal of solid waste is performed must obtain a permit from the Alabama Department of Public Health, State

Board of Health. No person may send nonhazardous solid waste to any site or facility other than one that has such a permit (Admin. Code R. 420-3-5-.02). All collection and transportation of solid nonhazardous waste must be in accordance with these regulations (Admin. Code R. 420-3-5-.11).

Alabama is a RCRA-authorized state and has promulgated hazardous waste regulations that basically reflect the federal standards. These regulations govern the generation and accumulation of hazardous waste (Admin. Code R. 335-14-3), transportation of hazardous waste (Admin. Code R. 335-14-4), storage of hazardous waste for more than 90 days, and ultimate treatment and disposal of hazardous waste (Admin. Code R. 335-14-5). Alabama has adopted the EPA military munitions rule, and any waste military munitions that are chemical agents or chemical munitions and that exhibit a hazardous waste characteristic or are listed as a hazardous waste are subject to all applicable regulatory requirements of RCRA, except for the one-year storage prohibition (Admin. Code R. 335-14-7-.13(6)(d)). The treatment and disposal of hazardous waste military munitions are subject to the applicable permitting, procedural, and technical standards (Admin. Code R. 335-14-7-.13(7)).

The regulations define hazardous waste on the basis of the waste's hazardous characteristics (i.e., characteristic hazardous wastes) or the specific regulatory listing of the waste (i.e., listed hazardous wastes) (Admin. Code R. 335-14-2). The Alabama Department of Environmental Management (ADEM) has not specifically designated chemical agents or munitions as listed hazardous wastes. Therefore, if a chemical agent or munition has hazardous waste characteristics, it must be managed as a hazardous waste. Hazardous waste characteristics include any waste that is ignitable, toxic (e.g., contains a set concentration of certain regulated toxic constituents), corrosive, or reactive. A characteristically reactive hazardous waste is a solid waste that (1) is normally unstable and readily undergoes violent change without detonating; (2) reacts violently with water; (3) forms potentially explosive mixtures with water; (4) when mixed with water, generates toxic gases, vapors, or fumes in a quantity sufficient to present danger to human health or the environment; (5) is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure; or (6) is a forbidden explosive as defined by the U.S. Department of Transportation (DOT). Chemical munitions could meet the reactive standard. Salts generated from the treatment process could contain metal contaminants and might meet the toxic hazardous characteristic. In addition, all M55 rockets have been declared to be hazardous waste by the U.S. Department of Defense (DOD). Under Alabama hazardous waste regulations, waste containing PCBs in excess of 50 ppm must be managed and disposed of in accordance with TSCA regulations (Admin.Code R. 335-14-2-.01(8); 40 CFR 761).

ADEM may issue a research, development, and demonstration (RD&D) permit for any hazardous waste treatment facility that proposes to use an innovative and experimental hazardous waste treatment technology or process for which permit standards for such experimental activity have not been promulgated (Admin. Code R. 335-14-8-.06(4)). Such a permit has a duration of no longer than one year, but it can be renewed three times for a period of not more than one year each. An RD&D permit provides for the receipt and treatment of only those types and quantities

of hazardous waste that ADEM deems necessary for determining the efficacy and performance capabilities of the technology or process and the effects of such a technology or process on human health and the environment. Such an RD&D permit shall include such conditions as the ADEM deems necessary to protect human health and the environment, including, but not limited to, requirements regarding monitoring, operation, closure, and remedial action. In addition, the permit will contain conditions that ADEM deems necessary regarding testing and providing information to ADEM with respect to the operation of the facility. In granting an RD&D permit, ADEM may, consistent with the protection of human health and the environment, modify or waive permit application and permit issuance requirements, except for the procedures regarding public participation.

The *Alabama Chemical Weapons Destruction Limitation Act* (Code of Alabama, Sections 22-30C et seq.) requires that the Army process and destroy at ANAD only the stocks stored there as of the date of the Army's contract with a commercial company to do such destruction and will not allow other materials to be processed or destroyed there, except those materials used to demonstrate the performance of incinerators and pollution abatement systems during a trial burn demonstration. In addition, the Army must comply with its own written plan to close the demilitarization facility in accordance with RCRA, once the current stockpile at ANAD has been completely and safely destroyed.

9.2.3.1 ACWA Facility Construction

Under RCRA, all wastes generated during construction of an ACWA facility at ANAD (i.e., construction chemicals, adhesives, and solvents) would have to be characterized to determine if they were hazardous or nonhazardous (Admin. Code R. 335-14-3-.01(2)). If they were hazardous, they would have to be stored to comply with Alabama hazardous waste regulations, including specific container management and labeling requirements. If the hazardous construction wastes were kept on site for more than 90 days, they would have to be stored in an ADEM-permitted storage facility. ANAD has interim status for a number of hazardous waste storage facilities. A RCRA Part B application has been filed; however, no RCRA permit has been issued by ADEM. If the hazardous waste from the construction activities were to vary from those wastes currently listed in the ANAD RCRA Part A application, a modification of the application might be required. Shipments of hazardous wastes off site would have to be under a proper RCRA manifest to a properly permitted RCRA hazardous waste storage, treatment, and disposal facility (TSDF).

Nonhazardous solid wastes, including construction debris wastes, would have to be disposed of in disposal sites properly permitted under Alabama solid waste regulations (Admin. Code R. 420-3-5 et seq.). Since no nonhazardous wastes would be disposed of on the ANAD site (e.g., in a landfill), no Alabama State Board of Health approval would be required.

9.2.3.2 ACWA Facility Operations

In Alabama, wastes that are defined as hazardous, either by characteristic (e.g., corrosive decontamination water) or by listing (e.g., certain spent solvents), must be accumulated in accordance with the Alabama regulations for generators (Admin. Code R. 335-14-3). If these wastes are to be stored on site for more than 90 days, the storage facility must be permitted by ADEM and operated in accordance with Alabama regulations for permitted TSDFs (Admin. Code R. 335-14-5). If hazardous wastes are to be stored in existing, on-site storage facilities, the existing ANAD Part A application might need to be amended to allow for the storage of different types of waste or for storage in different configurations (e.g., pallet stacking height). In addition, the Part B application may have to be amended to reflect additional storage operations. Shipments of hazardous wastes off site must be under a proper RCRA manifest to a properly permitted RCRA TSDF.

Any ACWA facility constructed at ANAD would have to obtain a RCRA permit from ADEM, probably as a miscellaneous RCRA treatment unit (Admin. Code R. 335-14-5-.24). "Miscellaneous units" (also referred to a subpart X units) are permitted RCRA units that do not meet the definition of conventional RCRA units (e.g., tanks, land treatment, landfills, or incinerators). Regulations for Subpart X units are not technology specific; therefore, design standards, effluent/emission limitations, technical performance standards, and operational requirements are generally established in the specific permit conditions. The re-use of the gaseous emissions from the GPCR as an auxillary fuel might require the boiler/process heater, depending on design and fuel characteristics, to be classified as a RCRA BIF, which has additional regulatory operational and emission standards (Admin. Code R. 335-14-7-.08; 40 CFR 266, Subpart H).

ANAD currently holds interim status for a number of RCRA storage facilities, including facilities for storage of chemical agent containing M55 rockets and one treatment facility for the open burn/open detonation of conventional weapons. A Part B application has been filed, but no permanent RCRA permit has been issued by ADEM. (A separate RCRA Part B permit was granted to ANAD for the Anniston Chemical Agent Disposal Facility [ANCDF]; the administrative appeal of the ANCDF permit was denied by ADEM, and that decision was appealed to the appropriate State Circuit Court, which upheld the permit against all challenges, except one. ADEM, the Army, and Westinghouse have appealed that ruling to the Alabama Supreme Court. No decision has been issued to date.) Although RCRA permit applications for ANAD proper and the ANCDF were submitted separately, ADEM now requires that all operations located on ANAD (i.e., associated with the ANAD EPA ID Number) be conducted under one permit. The ANAD and ANCDF permit applications will be merged, both in format and content, to enable ADEM to issue a single permit. Therefore, any RCRA permit application for an ACWA facility would have to be prepared as a modification to the single ANAD permit application. Construction and operation of the new unit could not begin, however, until a RCRA permit was issued (Admin. Code R. 335-14-8-.02(f)). Alternatively, ADEM could issue an RD&D permit for an alternative technology facility, provided the facility would meet the regulatory time limitations and other ADEM conditions. If M55 rocket firing/shipping tubes were

to be treated, the ACWA facility (SCWO and Elchem Ox technologies only) would also require approval from the EPA under TSCA (40 CFR 761).

Nonhazardous solid wastes, including operations and maintenance wastes, would have to be disposed of in disposal sites properly permitted under Alabama solid waste facilities regulations (Admin. Code R. 420-3-5). Since no nonhazardous wastes would be disposed of on the ANAD site (e.g., in a landfill), no Alabama State Department of Health approval would be required.

9.2.3.3 No Action

ANAD currently holds RCRA interim status for one conventional hazardous waste storage facility and 41 storage units for chemical weapon wastes (e.g., M55 rockets). In addition, an ACWA facility would be required to obtain a Certificate of Designation from Pueblo County (Colorado Revised Statues 25-15-201). The wastes generated during continued storage and maintenance activities are currently accumulated in accordance with the ANAD Hazardous Waste Management Plan and stored in the existing interim status units. Continued storage would have no impact on the existing RCRA interim status facility or RCRA generator activities. Currently, hazardous wastes are shipped to an off-site, RCRA-permitted TSDF under a proper RCRA manifest.

Similarly, solid wastes generated during storage and maintenance activities are currently accumulated, stored, and disposed of through existing solid waste collection and disposal practices. No additional solid wastes would be generated under the no action alternative at ANAD.

9.2.4 PBA

Arkansas has promulgated nonhazardous solid waste regulations (Arkansas Department of Environmental Quality [ADEQ] Regulation No. 22). Under these regulations, anyone operating a facility for solid waste disposal where processing, treatment, storage, or final disposal of solid waste is performed must obtain a permit from ADEQ. No person may send nonhazardous solid waste to any site or facility other than one that has obtained such a permit (*Arkansas Code Annotated* [ACA] 8-6-205(a)(3)). All collection and transportation of solid nonhazardous waste must be in accordance with these regulations (ADEQ Regulation No. 22, Section 22.203).

Arkansas is a RCRA-authorized state and has promulgated hazardous waste regulations that basically reflect the federal standards. ADEQ Regulation No. 23, Section 262, governs the generation and accumulation of hazardous waste. Section 263 governs the transportation of hazardous waste. Sections 264 through 270 govern the storage of hazardous waste for more than

90 days, the ultimate treatment and disposal of hazardous waste, and the closure of hazardous waste TSDFs. Arkansas has adopted the EPA military munitions rule, and any waste military munitions that are chemical agents or chemical munitions and that exhibit a hazardous waste characteristic or are listed as a hazardous waste are subject to all applicable regulatory requirements of RCRA, except for the one-year storage prohibition (ADEQ Regulation No. 23, Section 266.205(d)). The treatment and disposal of hazardous waste military munitions are subject to applicable permitting, procedural, and technical standards (ADEQ Regulation No. 23, Section 266.206).

The regulations define hazardous waste on the basis of hazardous characteristics (i.e., characteristic hazardous wastes) or the specific regulatory listing of the waste (i.e., listed hazardous wastes) (ADEQ Regulation No. 23, Section 261). ADEQ has not designated chemical agents or munitions as listed wastes in its regulations. Therefore, if a chemical agent or munition has hazardous waste characteristics, it must be managed as a hazardous waste. Hazardous waste characteristics include being ignitable, toxic (e.g., the waste contains a set concentration of certain regulated toxic constituents), corrosive, or reactive. A characteristically reactive hazardous waste is a solid waste that (1) is normally unstable and readily undergoes violent change without detonating; (2) reacts violently with water; (3) forms potentially explosive mixtures with water; (4) when mixed with water, generates toxic gases, vapors, or fumes in a quantity sufficient to present danger to human health or the environment; (5) is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure; or (6) is a forbidden explosive as defined by DOT. Most chemical munitions could meet the reactive standard. In addition, DOD has declared M55 rockets to be hazardous waste, and PBA has entered into a Consent Administrative Order with the ADEQ concerning the management and storage of M55 rockets as hazardous waste, including the explosive charges and the GB and VX contained within (Consent Administrative Order LIS 84-068). Salts generated from the treatment process could contain metal contaminants and might meet the toxic hazardous characteristic. Under Arkansas hazardous waste regulations, waste containing PCBs in excess of 50 ppm must be managed and disposed of in accordance with TSCA regulations (ADEQ Regulation No. 23, Section 261.8).

Under its regulations, the ADEQ may issue an RD&D permit for any hazardous waste treatment facility that proposes to use an innovative and experimental hazardous waste treatment technology or process for which permit standards for such experimental activity have not been promulgated (ADEQ Regulation 23, Section 270.65). Such a permit has a duration of no longer than one year, but it can be renewed three times for a period of not more than one year. An RD&D permit provides for the receipt and treatment of only those types and quantities of hazardous waste that ADEQ deems necessary for purposes of determining the efficacy and performance capabilities of the technology or process and the effects of such a technology or process on human health and the environment. Such an RD&D permit shall include such requirements as ADEQ deems necessary to protect human health and the environment, including, but not limited to, requirements regarding monitoring, operation, closure, and remedial action. In addition, the permit will contain requirements that ADEQ deems necessary regarding testing and providing information to ADEQ with respect to the operation of the facility. In granting an RD&D permit, ADEQ may, consistent with the protection of human health and the environment,

modify or waive permit application and permit issuance requirements, except for the procedures regarding public participation.

9.2.4.1 ACWA Facility Construction

Under RCRA, all wastes generated during construction of an ACWA facility at PBA (i.e., construction chemicals, adhesives, and solvents) would have to be characterized to determine if they were hazardous or nonhazardous (ADEQ Regulation 23, Section 262.11). If they were hazardous, they would have to be stored according to Arkansas hazardous waste regulations, including specific container management and labeling requirements. If the hazardous construction wastes were kept on site for more than 90 days, they would have to be stored in an ADEQ-permitted storage facility. PBA has several RCRA permitted storage facilities and holds interim status for a number of hazardous waste storage facilities. If the hazardous wastes from the construction activities were to vary from those wastes currently listed in the PBA RCRA permit for existing storage areas, a modification of the permit or the Part A interim status application might be required to store the additional wastes generated during construction. Shipments of hazardous wastes off site would have to be under a proper RCRA manifest to a properly permitted RCRA hazardous waste TSDF.

Nonhazardous solid wastes, including construction debris wastes, would be disposed of in disposal sites properly permitted under Arkansas solid waste regulations (ADEQ Regulation No. 22). Since no nonhazardous wastes would be disposed of on the PBA site (e.g., in a landfill), no ADEQ approval would be required.

9.2.4.2 ACWA Facility Operations

In Arkansas, wastes that are defined as hazardous, either by characteristic (e.g., salts with metals), by listing, or pursuant to agreement with the ADEQ (Consent Administrative Order LIS 84-068), must be accumulated in accordance with the Arkansas regulations for generators (ADEQ Regulation No. 23, Section 262). If these wastes are to be stored on site for more than 90 days, the storage facility must be permitted by ADEQ and operated in accordance with Arkansas regulations for permitted TSDFs (ADEQ Regulation No. 23, Section 264 or 265). If hazardous wastes are to be stored in existing, on-site RCRA storage facilities, the existing PBA RCRA permit or Part A application might need to be amended to allow for the storage of different types of waste or for storage in different configurations (e.g., pallet stacking height). In addition, the pending Part B application might have to be amended to reflect additional storage operations. Shipments of hazardous wastes off site must be under a proper RCRA manifest to a properly permitted RCRA TSDF.

Any ACWA facility constructed at PBA would have to obtain a RCRA permit from ADEQ, probably as a miscellaneous RCRA treatment unit (ADEQ Regulation No. 23,

Section 264.600). "Miscellaneous units" (also referred to a Subpart X units) are units that do not meet the definition of conventional RCRA units (e.g., tanks, land treatment, landfills, or incinerators). Regulations for Subpart X units are not technology specific; therefore, design standards, effluent/emission limitations, technical performance standards, and operational requirements are generally established in the specific permit conditions. The re-use of these gaseous emissions as an auxillary fuel in the Neut/GPCR/TW-SCWO process might require the boiler, depending on design and fuel characteristics, to be classified as a RCRA BIF, which has additional regulatory operational and emission standards (ADEQ Regulation 23; 40 CFR Section 266, Subpart H).

PBA currently holds a RCRA permit for a number of RCRA storage facilities and a hazardous waste landfill. PBA holds interim status (e.g., a Part A permit has been filed) for Subpart Y treatment facilities, including a waste volume incineration unit and an open burn/open detonation unit for processing hazardous wastes (e.g., off-specification conventional weapons). PBA has also filed a Part A application for additional storage facilities for chemical weapons (i.e., the M55 rockets). A Part B application has been filed for the interim status facilities, but no permanent RCRA permit has been issued by ADEQ. ADEQ issued a separate RCRA Part B permit to PBA for the Pine Bluff Chemical Demiliterization Facility. PBA also holds a RCRA permit for its Central Incinerator Complex, which includes a rotary deactivation furnace and a fluidized-bed incinerator (see Section 5.2.1.2). Although this unit was permitted to process RCRA hazardous wastes, it is currently only used intermittently to burn nonhazardous wastes. The existing Part B application could be amended to include the new ACWA treatment unit, or a separate Part A and Part B permit application could be filed. Construction and operation of the new unit could not begin, however, until a RCRA permit was issued (ADEQ Regulation 23, Section 270). Alternatively, ADEQ could issue an RD&D permit for an alternative technology facility, provided the facility could meet the regulatory time limitations and other ADEQ conditions. If M55 rocket firing/shipping tubes were to be treated, the ACWA facility would also require approval from the EPA under TSCA (40 CFR 761).

Nonhazardous solid wastes, including operations and maintenance wastes, would have to be disposed of in disposal sites properly permitted under Arkansas solid waste facilities regulations (ADEQ Regulation 22). Since no nonhazardous wastes would be disposed of on the PBA site (e.g., in a landfill), no ADEQ approval would be required.

9.2.4.3 No Action

PBA currently holds a RCRA permit for a number of conventional hazardous waste storage facilities and interim status for the additional storage units used to store chemical weapon wastes (i.e., M55 rockets). The wastes generated during storage and maintenance activities are currently accumulated in accordance with the PBA Hazardous Waste Management Plan and stored in the existing RCRA units. Continued storage would have no impact on the existing RCRA interim status facility or RCRA generator activities. Currently, hazardous wastes are shipped to an off-site, RCRA-permitted TSDF under a proper RCRA manifest.

Similarly, solid wastes generated during storage and maintenance activities are currently accumulated, stored, and disposed of through existing solid waste collection and disposal practices. No additional solid wastes would be generated under the no action alternative.

9.2.5 PCD

Colorado has promulgated nonhazardous solid waste regulations (6 *Code of Colorado Regulation* [CCR] 1007-2). Under these regulations, anyone operating a facility for solid waste disposal where processing, treatment, storage, or final disposal of solid waste is performed must obtain a Certificate of Designation from the local governing authority, in coordination with the Colorado Department of Public Health and Environment (CDPHE).

Colorado is a RCRA-authorized state and has promulgated hazardous waste regulations that basically mirror the federal standards (6 CCR 1007-3). Part 262 of 6 CCR 1007-3 governs the generation and accumulation of hazardous waste. Part 263 governs the transportation of hazardous waste. Part 264 governs the permitted storage of hazardous waste. Parts 264 and 268 govern the ultimate treatment and disposal of hazardous waste and closure of hazardous waste TSDFs. CDPHE regulations incorporate some special provisions concerning military munitions (6 CCR 1007-3 Part 267, Subpart M). However, other than off-range used or fired military munitions, which are automatically defined as solid waste, all other military munitions are governed by conventional hazardous waste regulations on the basis of the definition of a solid waste and the definition of a hazardous waste.

The regulations define hazardous waste on the basis of the waste's hazardous characteristics (i.e., characteristic hazardous wastes) or the specific regulatory listing of the waste (i.e., listed hazardous wastes) (6 CCR 1007-3 Part 261). Under these regulations, the CDPHE has designated the following wastes as listed hazardous wastes. Mustard, mustard agent, mustard gas, H, and HD (bis(2-chloroethyl)sulfide) are designated as Hazardous Waste No. P909. Mustard, mustard agent, mustard gas, and HT (bis(2-chloroethyl)sulfide) and bis[2(2-chloroethylthio)ethyl]ether) are designated as Hazardous Waste No. P910 (6 CCR 1007-3, Section 261.33(e)). On June 19, 2001, the CDPHE adopted amendments to its hazardous waste regulations to add Waste Chemical Weapons (Hazardous Waste No. K901) and environmental media, debris, and containers contaminated through contact with Waste Chemical Weapons (Hazardous Waste No. K902) to the list of hazardous wastes from specific sources. The regulatory analysis specifically refers to these secondary wastes (i.e., contaminated media, debris, and containers) as solid wastes generated as a result of the treatment, storage, or disposal of Waste Chemical Weapons. In addition, the regulatory analysis states that wastes that meet the listing description for secondary wastes (Hazardous Waste No. K902) would not carry the listing for Waste Chemical Weapons (Hazardous Waste No. K901), a listing that might otherwise be applied to these wastes on the basis of their mixture and derived rules.

Further, the regulatory analysis accompanying the proposed amendments states:

> "Components that are removed from a Waste Chemical Weapon and that can be demonstrated to not be contaminated by chemical agent need not be managed as Waste Chemical Weapons. Also, chemical weapons that undergo baseline reconfiguration before they become wastes do not meet the listing description for Waste Chemical Weapons."

Appendixes VII and VIII to Part 261 of the CDPHE regulations have also been amended to add Sarin, mustard agent, and mustard HT agents as the specific chemical agents that are the basis of the listing (Appendix VII) and as hazardous constituents (Appendix VIII). In addition, the definition of "chemical weapons" in Section 260.10 was amended to read,

> "…agent or munition that, through its chemical properties, produces lethal or other damaging effects on human beings, except that such term does not include riot control agents, chemical herbicides, smoke and other obscuration materials."

These amendments will become effective on July 30, 2001 (CDPHE 2001). Therefore, treatment of mustard agent, mustard gas, H, HD, or HT can only be accomplished at a CDPHE-permitted TSDF. In addition, any solid waste generated from the treatment, storage, or disposal of a listed hazardous waste (including any sludge, spill residue, ash, emission control dust, or leachate) is also a listed hazardous waste, bearing the same hazardous waste number as the original waste to be treated (e.g., P909 or P910) (6 CCR 1007-3, Section 261.3), unless specifically delisted by the CPPHE (6 CCR 1007-3, Section 261.22). Therefore, any wastes generated from the chemical agent/weapon demilitarization/treatment process, regardless of whether they would demonstrate a hazardous characteristic, would continue to be listed as hazardous wastes and would have to be managed, stored, and disposed of in accordance with Colorado hazardous waste requirements. Under Colorado hazardous waste regulations, wastes containing PCBs in excess of 50 ppm must be managed and disposed of in accordance with TSCA regulations (6 CCR 1007-3, Section 261.8; 40 CFR 761).

9.2.5.1 ACWA Facility Construction

Under RCRA, all wastes generated during construction of an ACWA facility at PCD (i.e., construction chemicals, adhesives, and solvents), would have to be characterized to determine if they were hazardous or nonhazardous (6 CCR 1007-3, Section 262.11). If they were hazardous, they would have to be stored according to Colorado hazardous waste regulations, including specific container management and labeling requirements. If the hazardous construction wastes were kept on site for more than 90 days, they would have to be stored in a CDPHE-permitted storage facility. PCD holds a CDPHE-issued RCRA permit for four hazardous waste storage facilities; the permit delineates the exact waste codes that can be stored therein. If hazardous waste from the construction activities were to vary from those wastes currently listed in the PCD

RCRA permit, modification of the existing RCRA permit might be required. Shipments of hazardous wastes off site would have to be under a proper RCRA manifest to a properly permitted RCRA TSDF.

Nonhazardous solid wastes, including construction debris wastes, could be disposed of in disposal sites that hold valid Certificates of Designation issued by the local authority and the CDPHE.

9.2.5.2 ACWA Facility Operations

Wastes that are characterized as hazardous, either by characteristic (e.g., corrosive decontamination water) or by listing (e.g., brine salts generated during the treatment of mustard), must be accumulated in accordance with the CDPHE regulations for generators (6 CCR 1007-3 Part 262). If wastes generated during ACWA operations are to be stored on site for more than 90 days, the storage facility must have a RCRA TSDF permit and operate in accordance with the CDPHE regulations for permitted TSDFs (6 CCR 1007-3 Part 264). If hazardous wastes are to be stored in existing, on-site, CDPHE-permitted storage facilities, the existing PCD RCRA permit might need to be amended to allow for the storage of different types of waste or for storage in different configurations (e.g., pallet stacking height). Shipments of hazardous wastes off site would have to be under a proper RCRA manifest to a properly permitted RCRA TSDF.

Any ACWA facility constructed at PCD would have to obtain a RCRA permit from CDPHE, probably as a miscellaneous RCRA treatment unit (6 CCR 1007-3, Section 264.601, et seq.). “Miscellaneous units” (also referred to a Subpart X units) are units that do not meet the definition of conventional RCRA units (e.g., tanks, land treatment, landfills, or incinerators). Regulations for Subpart X units are not technology specific; therefore, design standards, effluent/emission limitations, technical performance standards, and operational requirements would be established in the specific permit conditions. Any re-use of gaseous emissions as an auxillary fuel might require the boiler, depending on design and fuel characteristics, to be classified as a RCRA BIF, which has additional regulatory operational and emission standards (40 CFR Section 266, Subpart H). In addition, an ACWA facility would be required to obtain a Certificate of Designation from Pueblo County (*Colorado Revised Statutes* 25-15-201).

CDPHE has indicated that it would consider issuing an RD&D permit for the alternative technology facilities (Schieffelin 1997). As indicated by CDPHE, some of the advantages of an RD&D permit include (1) a possible reduction in the amount of time and effort needed to prepare the application as (as opposed to the amount needed to prepare an application for a full RCRA Part B permit); (2) a reduction in the need to modify the existing PCD RCRA permit; (3) the permit’s allowance for full-scale testing of a unit to determine operating parameters, maintenance requirements, and any special controls necessary for a particular waste; and (4) the determination of equipment suitability without having to submit a full RCRA Part B permit application.

Nonhazardous solid wastes, including construction debris wastes, would have to be disposed of in disposal sites that hold valid Certificates of Designation issued by the local authority and CDPHE. Since no nonhazardous wastes would be disposed of on site at PCD (e.g., in a landfill), no PCD Certificate of Designation would need to be acquired from Pueblo County. However, sanitary wastes would be discharged to the existing evaporative lagoons for disposal (see Section 9.5.4).

9.2.5.3 No Action

PCD currently holds a CDPHE-issued RCRA permit for four hazardous waste storage facilities, including two facilities for the storage of chemical-agent-contaminated wastes. The wastes generated during storage and maintenance activities are currently accumulated in accordance with the PCD Hazardous Waste Management Plan and stored in the existing permitted units. Continued storage would have no impact on the existing PCD RCRA-permitted storage or RCRA generator activities.

Similarly, solid wastes generated during storage and maintenance activities are currently accumulated, stored, and disposed of through existing solid waste collection and disposal practices. No additional solid wastes would be generated under the no action alternative at PCD.

9.2.6 BGAD

Kentucky has promulgated nonhazardous solid waste regulations (401 *Kentucky Administrative Regulation* [KAR] Parts 47–49). Under these regulations, anyone operating a facility for solid waste disposal where processing, treatment, storage, or final disposal of solid waste is performed must obtain a permit from the Department of Environmental Protection (referred to as KDEP) in the Kentucky Natural Resources and Environmental Protection Cabinet (Cabinet). No person may send nonhazardous solid waste to any site or facility other than one that has obtained such a permit (*Kentucky Revised Statute* [KRS] 224.40-100).

Kentucky is a RCRA-authorized state and has promulgated hazardous waste regulations (401 KAR, Parts 32–38) that basically reflect the federal standards. Part 32 governs the generation and accumulation of hazardous waste. Part 33 governs the transportation of hazardous waste. Parts 34 through 38 govern the storage of hazardous waste for more than 90 days, the ultimate treatment and disposal of hazardous waste, and the closure of hazardous waste TSDFs.

The regulations define hazardous waste on the basis of the waste's hazardous characteristics (i.e., characteristic hazardous wastes) or the specific regulatory listing of the waste (i.e., listed hazardous wastes) (401 KAR 31). As directed by statute (KRS 224.50-130(2)), the Cabinet has designated the following wastes as listed hazardous wastes. GB (isopropyl methyl phosphonoflouridate) is designated as Hazardous Waste No. N001. VX (o-ethyl-s-(2-diisopropyl-

aminoethyl)-methyl phosphonothiolate) is designated as Hazardous Waste No. N002. H (bis(2-chloroethyl)sulfide) and related compounds are designated as Hazardous Waste No. N003. Therefore, GB, VX, and H can be treated in Kentucky only at a Cabinet-permitted hazardous waste TSDF. Under the regulations, any waste derived from the treatment, storage, or disposal of a listed hazardous waste (including any sludge, ash, emission control dust, or leachate) is also a listed hazardous waste (i.e., bearing the code N001, N002, or N003) per 401 KAR 31:010, Section 3(3)(b)(1), unless specifically delisted by the Cabinet (401 KAR 31:070). Therefore, unless a delisting petition is granted by the Cabinet, any wastes generated from a chemical agent/weapon demilitarization/treatment process, regardless of their current hazardous characteristics, must continue to be identified as listed hazardous wastes and must be managed, stored, and disposed of in accordance with Kentucky hazardous waste requirements. In addition, all M55 rockets have been declared to be hazardous wastes by DOD. Under Kentucky hazardous waste regulations, waste containing PCBs in excess of 50 ppm must be managed and disposed of in accordance with TSCA regulations (401 KAR 31:010, Section 8; 40 CFR 761).

An amendment to the Kentucky statutes governing the management of chemical munition wastes (KRS 224.50-130) became effective on July 14, 2000 (Kentucky Legislature House Bill 579, Kentucky Acts, Chapter 482, Section 1). This amendment sets new criteria to be used by the Cabinet in making a determination to issue, deny, or condition a permit for treatment or disposal of chemical munitions waste. Under the amended statute, "treatment" includes:

> "the manual or mechanical handling of the chemical compounds listed in subsection (2) of this section [GB, VX, and H] and of any munitions containing the compounds during the processing of munitions to remove the compounds, to separate munitions compounds, and to otherwise prepare the components and compounds for destruction, neutralization, dismantling, or decommissioning."

Treatment does not, however, include:

> "the handling, movement, or overpacking of containers or munitions containing a compound listed in subsection (2) of this section within the fenced boundaries of an area used for the storage of those munitions if:
>
> (a) A plan for the handling, movement or overpacking is submitted and approved by the cabinet, after public notice and opportunity to be heard, before the handling, movement, or overpacking occurs; or
>
> (b) An emergency has occurred and the handling, movement, or overpacking is necessary to protect human health, safety, or the environment, if a report describing the handling, movement, or overpacking is submitted to the cabinet as soon as possible after the emergency is abated."

Under the amendment, before the issuance, conditional issuance, or denial of a permit, the applicant must affirmatively demonstrate and the Cabinet must find that the following has occurred:

> "The proposed treatment or destruction technology has been fully proven in an operational facility of scale, configuration, and throughput comparable to the proposed facility, or has been demonstrated as effective, within the chemical weapons disposal programs as directed in Pub.L. 104-208 and other applicable federal laws, sufficient to provide assurance of destruction or neutralization at an efficiency of ninety-nine and nine thousand, nine hundred, and ninety-nine ten thousandths percent (99.9999%) for each compound listed in subsection (2) of this section that is proposed to be treated or destroyed, with an efficiency to be demonstrated as achievable under all operating conditions. During the occurrence of malfunctions, upsets, or unplanned shutdowns, all quantities of any compound listed in subsection (2) of this section shall be contained, reprocessed or otherwise controlled so as to ensure that the required efficiency is attained prior to any release to the environment."

In addition, the amended statute provides:

> "An emergency response plan must have been submitted to the Cabinet and approved, after public notice and an opportunity to be heard, providing for sufficient training, coordination, and equipment for state and local emergency response personnel, including health, police, fire, and other responders, to assure the ability of the community to respond to releases from such a facility. The plan shall demonstrate the capability of evacuating prior to exposure, or otherwise mitigating exposure for all individuals that might be exposed to releases from the facility during a credible worst-case release. . . . If such plan has not been fully implemented at the time of permit approval, the Division of Emergency Management shall advise the cabinet of critical shortcomings. Any permit issued shall include, as conditions, the resolution of critical shortcomings in the implementation of the plan, and shall not allow actual destruction of any of the compounds identified in subsection (2) of this section to begin until those permit conditions have been met to the satisfaction of the Division of Emergency Management."

A draft plan will be submitted by each respective county, and the Division of Emergency Management will complete an assessment of that draft plan and approve or reject it, after public notice and an opportunity to be heard. The Cabinet can conduct no technical review of an application for a permit for treatment or disposal until notified in writing by the Division of Emergency Management that the draft plan has been approved.

In addition, the Cabinet must conduct an alternatives analysis and after public notice and an opportunity to be heard, make an affirmative finding, that no alternative method of treatment

or disposal exists in an operational facility or alternative disposal program that creates less risk of release, acute or chronic health effect, or adverse environmental effect.

Current Cabinet regulations concerning the treatment of nerve and blister agents (401 KAR 34:350), effective November 22, 1989, have not yet been modified to reflect the new legislation. However, these regulations also require an affirmative demonstration that the proposed treatment or destruction technology is proven in an operational facility having a scale, configuration, and throughput comparable to those of the proposed facility for a period of time sufficient to provide assurance of 99.9999% destruction or neutralization of each substance proposed to be treated or destroyed. Monitoring data from the comparable facility must reflect the absence of emissions from stack or fugitive sources, including, but not limited to, the products of combustion and incomplete combustion, which alone or in combination present an adverse effect on human health or the environment. In addition, provisions must have been made for development and funding of sufficient training, coordination, and equipment for state and local emergency response personnel, including the health, police, fire, and emergency response fields, to assure the ability of the community to respond to releases from such a facility. This must include development and funding of an evacuation plan that demonstrates the capability of removing individuals from the largest area of risk from a worst-case release.

9.2.6.1 ACWA Facility Construction

Under RCRA, all wastes generated during construction of the ACWA facility at BGAD (i.e., construction chemicals, adhesives, and solvents) would have to be characterized to determine if they are hazardous or nonhazardous (401 KAR 32:010, Section 2). If they are hazardous, they would have to be stored according to Kentucky hazardous waste regulations, including specific container management and labeling requirements. If the hazardous construction wastes are kept on site for more than 90 days, they would have to be stored in a Cabinet-permitted storage facility. BGAD has interim status for two conventional hazardous waste storage facilities and 39 storage units for waste chemical weapons (M55 rockets that have been declared to be hazardous waste). A Part B application has been filed; however, no RCRA permit has been issued by the Cabinet. If hazardous waste from the construction activities were to vary from those wastes currently listed in the BGAD RCRA Part A application, a modification of the application might be required. Shipments of hazardous wastes off site would have to be under a proper RCRA manifest to a properly permitted RCRA TSDF.

Nonhazardous solid wastes, including construction debris wastes, would be disposed of in disposal sites properly permitted under Kentucky solid waste regulations (401 KAR 47). Since no nonhazardous wastes would be disposed of on site (e.g., in a landfill), no Cabinet approval would be required.

9.2.6.2 ACWA Facility Operations

Wastes that are defined as hazardous, either by characteristic (e.g., corrosive decontamination water) or by listing (e.g., brine salts generated during the treatment process), must be accumulated in accordance with the Kentucky regulations for generators (401 KAR 32). If these wastes are to be stored on site for more than 90 days, the storage facility must be permitted by the Cabinet and operate in accordance with the Kentucky regulations for permitted TSDFs (401 KAR 34). If hazardous wastes generated during the ACWA pilot facility operations would be stored in existing, on-site storage facilities, BGAD's Part A application might need to be amended to allow for the storage of different types of waste or for storage in different configurations (e.g., pallet stacking height). In addition, the Part B application might have to be amended to reflect additional storage operations. Shipments of hazardous wastes off site would have to be done under a proper RCRA manifest to a properly permitted RCRA TSDF.

Any ACWA pilot facility constructed at BGAD would have to obtain a RCRA permit from the Cabinet, probably as a miscellaneous RCRA treatment unit (401 KAR 34.250 et seq.). "Miscellaneous units" (also referred to a Subpart X units) are units that do not meet the definition of conventional RCRA units (e.g., tanks, land treatment, landfills, incinerators). Regulations for Subpart X units are not technology specific; therefore, design standards, effluent/emission limitations, technical performance standards, and operational requirements are generally established in the specific permit provisions. The re-use of gaseous emissions as an auxillary fuel in the Neut/GPCR/TW-SCWO process might require the boiler, depending on design and fuel characteristics, to be classified as a RCRA BIF, which has additional regulatory operational and emission standards (40 CFR Section 266, Subpart H).

Kentucky hazardous waste regulations provide for the issuance of RD&D permits for alternative technology facilities (401 KAR 31:038 Section 6). To expedite the review and issuance of an RD&D permit, the Cabinet may, consistent with the protection of human health and the environment, modify or waive permit application and permit issuance requirements. An RD&D permit is for a period of one year and may be renewed not more than three times, each time for a period of not more than one year.

BGAD currently holds interim status for certain RCRA storage facilities. A Part B application has been filed; however, no permanent RCRA permit has been issued by the Cabinet. The Part B application could be amended to include the new treatment unit, or a separate Part A and Part B application could be filed. Construction and operation of the new ACWA unit could not begin, however, until a RCRA permit was issued. Alternatively, the Cabinet could issue an RD&D permit for an alternative technology facility, provided the facility would meet the regulatory time limitations and other Cabinet conditions.

Nonhazardous solid wastes, including operations and maintenance wastes, must be disposed of in disposal sites properly permitted under Kentucky solid waste facilities regulations (401 KAR 47). Since no nonhazardous wastes would be disposed of on site (e.g., in a landfill), no Cabinet approval would be required.

9.2.6.3 No Action

BGAD currently has interim status for two conventional hazardous waste storage facilities and 39 storage units for chemical weapon wastes (e.g., M55 rockets). The wastes generated during storage and maintenance activities are currently accumulated in accordance with the BGAD Hazardous Waste Management Plan and stored in the existing interim status units. Continued storage would have no impact on the existing Cabinet-permitted RCRA facility or RCRA generator activities.

Similarly, solid wastes generated during storage and maintenance activities are currently accumulated, stored, and disposed of through existing solid waste collection and disposal practices. No additional solid wastes would be generated under the no action alternative.

9.3 AIR QUALITY

9.3.1 *Clean Air Act* Requirements

Any emissions from ACWA activities would be subject to the *Clean Air Act* (CAA) (42 USC 7401 et seq.), as amended. The CAA requires the EPA to establish national primary and secondary ambient air quality standards as necessary to protect public health and provide the public with an adequate margin of safety from any known or anticipated adverse effects of a pollutant. The CAA also requires promulgation of national standards of performance for new major stationary sources. These national standards set emission limits for any new or modified building, structure, facility, or installation that emits or may emit an air pollutant (42 USC 7411), and they set emission standards for hazardous air pollutants (HAPs) (42 USC 7412). The CAA also requires that specific emission increases from major sources be evaluated to prevent significant deterioration in air quality (42 USC 7470). In addition, the CAA requires the EPA to promulgate rules to ensure that federal actions conform to the appropriate state implementation plans (SIPs)(42 USC 7506).

Pursuant to such direction, the EPA promulgated (1) primary and secondary National Ambient Air Quality Standards (NAAQSs) for criteria pollutants, including standards for emissions of sulfur oxides (measured as sulfur dioxide [SO_2]), nitrogen dioxide (NO_2), carbon monoxide (CO), coarse inhalable particulate matter less than or equal to 10 μg (PM_{10}), fine inhalable particulate matter less than or equal to 2.5 μg ($PM_{2.5}$), ozone (O_3), and lead (Pb) (40 CFR Part 50); (2) New Source Performance Standards (NSPS) applicable only to specific source categories (40 CFR Part 60); (3) National Emission Standards for Hazardous Air Pollutants (NESHAP) applicable to only specific source categories (40 CFR Part 63); and Prevention of Significant Deterioration (PSD) regulations (40 CFR 52.21). The CAA provides that each state must develop and submit for approval to the EPA a SIP for controlling air

pollution and air quality in that state and that each state must develop its own regulations to monitor, permit, and control air emissions within its boundaries.

Under Title V of the *Clean Air Act Amendments of 1990* (CAAA), all states must adopt an operating permit program to control emissions within that state. The program must contain at least the minimum elements set forth in the EPA permitting requirements (40 CFR Part 70). Under these requirements, a state must issue a permit to (1) all major sources; (2) any source, including an area source, subject to HAP regulations (CAA Section 111); and (3) any source regulated under NSPS provisions (CAA Section 112). All existing major sources must then apply to the state authority within a certain time after the state program has received interim or full approval from the EPA. A state program may provide for exemption of nonmajor sources. Under the regulations, such applications must include information on all sources (not just major sources) of air pollutant emissions located within a facility, including all contiguous land under the control of one owner. However, under Title V permit regulations, insignificant activities and emission levels, as defined in the state program, do not need to be included in the permit application. States may adopt more or less stringent definitions for "insignificant" activities and emission levels than those set forth in the federal regulations.

Under Section 112(r) of the CAA, the EPA is to promulgate regulations to prevent the accidental release of any listed substance or any other extremely hazardous substance and to minimize the consequences of any such release. This section applies to owners and operators of facilities that produce, process, handle, or store a certain threshold quantity of such substances. The EPA has promulgated a list of regulated substances, threshold quantities for planning and reporting, and risk management planning requirements (40 CFR Part 68).

A federal agency must make a determination that a federal action conforms to the applicable SIP before such an action may be taken (CAA Section 176). Under the rule for determining conformity of general federal actions (40 CFR 51.850-860), federal agencies are subject to state SIPs. Until a state has revised its SIP to include Section 176 provisions, federal agencies are subject to EPA-promulgated conformity requirements (40 CFR 93.150-160). For federal actions, a conformity determination is required for each pollutant for which the total of direct and indirect emissions in a nonattainment or maintenance area caused by a federal action would equal or exceed certain limits (40 CFR 51.853). In addition, the total of direct and indirect emissions of any pollutant that would result from a federal action must not equal or exceed 10% of a nonattainment or maintenance area's total emissions of that pollutant. If it does, it is defined as a regionally significant action, and a conformity determination is required.

Under Army policy, although the general conformity rule applies only to actions that generate emissions in nonattainment or maintenance areas, installations in attainment areas can generally meet the general CAA requirements for conformity with the appropriate SIP (CAA Section 176) by addressing conformity (e.g., compliance with state emission standards and permitting requirements) in the NEPA documentation (Finch undated).

9.3.1.1 ANAD

The ANAD facility is located in Calhoun County in the state of Alabama. Although located in the East Alabama Intrastate Air Quality Control Region (40 CFR 81.199), ADEM regulations would apply to air emissions from the ANAD facility (Admin. Code R. 335-3, et seq.). Calhoun County is in attainment or unclassified for all regulated criteria air pollutants (40 CFR 81.301).

Under ADEM regulations, any major source is subject to permitting requirements (Admin. Code R. 335-3-16-.03). ANAD is a major source and currently holds an operating permit issued by ADEM. A facility that holds an ADEM operating permit must submit an application for a permit modification application whenever there is a significant or major modification (Admin. Code R. 335-3-16-.13(4)). A "major modification" is any physical change in a major stationary source that would result in a significant net emissions increase of any regulated pollutant (Admin. Code R. 335-3-14-.04(2)(b)). In determining if a modification is major, the increase in emissions from the proposed modification can be offset by decreases in actual emissions at the source that are contemporaneous with the modification (Admin. Code R. 335-3-14.04(2)(c)). A "significant net emissions increase" occurs when a modification to the source produces emissions equal to or in excess of the rates shown in Table 9.1.

Under the Alabama PSD program, any major modification to a source in an attainment area is required to undergo a PSD review (Admin. Code R 335-3-14-.04). No major modification to an existing major source can begin operating until it has been shown that the source will meet each applicable emission limitation under the SIP and each applicable limitation standard and standard of performance under federal NSPS and NESHAP requirements. In addition, each major source or major modification with a significant net emissions increase must demonstrate that allowable emission increases from the proposed source, in conjunction with all other applicable emission increases or reductions (including secondary emissions), would not cause or contribute to air pollution in violation of any NAAQS or any applicable maximum allowable increase over the baseline concentration in any area. Such a demonstration is referred to as a "source impact analysis." Concentrations of PM_{10} attributable to an increase in emissions that would result from construction or from other temporary emission-related activities by a new or modified source are not included in determining compliance with a maximum allowable increase (Admin. Code R. 335-3-14-.04(6)). In Calhoun County, a Class II county,[1] increases in pollutant concentrations over the baseline must be limited to the maximum allowable increase shown in Table 9.2. Each application for a permit must also contain an analysis of ambient air quality in the area that would be affected by the proposed source. This "air quality analysis" must address each pollutant that the source could potentially emit in a significant amount. It must also address each pollutant

[1] In 1975, the EPA developed a classification system to allow some economic development in clean air areas while still protecting air from significant deterioration. These classes are defined in the *1977 Clean Air Act Amendments* (CAAA). Very little deterioration is allowed in Class I areas (e.g., larger national parks and wilderness areas). Class II areas allow moderate deterioration. Class III areas allow deterioration up to the secondary standard.

TABLE 9.1 Significant Net Emissions Increase

Pollutant	Emission Rate (tons/yr)
Carbon monoxide (CO)	100
Nitrogen oxides (NO_x)	40
Sulfur dioxide (SO_2)	40
Particulate matter (PM)	25
PM_{10}	15
Ozone (as VOCs)[a]	40
Lead (Pb)	0.6
Fluorides	3
Sulfuric acid mist	7
Hydrogen sulfide (H_2S)	10
Total reduced sulfur (including H_2S)	10
Reduced sulfur compounds (including H_2S)	10

[a] VOCs = volatile organic compounds.

for which a modification to the source would result in a significant net emissions increase. A significant net emissions increase is any rate of emissions that would equal or exceed the rates in Table 9.1.

However, if the allowable emissions of a pollutant that would result from a major modification would not affect a Class I area or any area where an applicable increment is known to be violated, and the emission would be temporary, the source would not need to conduct a source impact analysis or an air quality analysis. (The regulations do not contain a definition of "temporary.")

ADEM has a Title V permitting program that applies to all major sources. Under Title V permit regulations, all air emissions from a facility must be reported on the Title V application, except insignificant or trivial activities. "Insignificant or trivial activities" generally mean any air emissions or any air emission unit that has the potential to emit less than 5 tons/yr of any criteria pollutant or less than 1,000 lb/yr of any HAP. ANAD has submitted an application for a Title V permit.

Alabama has revised its SIP to require conformity determinations for federal actions. The regulations apply only to nonattainment and maintenance areas for the criteria pollutants for which the area is designated (Admin. Code R. 335-3-17-.02, incorporating 40 CFR 93, Subpart B).

TABLE 9.2 Alabama Ambient Air Increments

Pollutant	Maximum Allowable Increase ($\mu g/ft^3$)
PM_{10}	
Annual arithmetic mean	17
24-hour maximum	30
Sulfur dioxide (SO_2)	
Annual arithmetic mean	20
14-hour maximum	91
3-hour maximum	514
Nitrogen dioxide (NO_2)	
Annual arithmetic mean	25

ACWA Facility Construction. Air emission impacts would result from the initial construction activities for any of the proposed ACWA facilities at ANAD. Air emissions from construction activities would include SO_2, NO_x, CO, and volatile organic compounds (VOCs) as well as PM, exhaust, and fugitive emissions that would result from construction equipment and vehicles. Concentrations of PM_{10} attributable to the increase in emissions that would result from construction or other temporary emission-related activities being conducted by a new or modified source would not be included in determining compliance with a maximum allowable increase (Admin. Code R. 335-3-14-.04(6)). However, fugitive dust or visible emission standards and/or mitigation requirements might still be applicable (Admin. Code R. 335-3-4-.01 and 335-3-4-.02). Under those regulations, no person may discharge into the atmosphere, from any source of emissions, PM with greater than 20% opacity, as determined by a six-minute average. In addition, no person may allow any materials to be handled, transported, or stored without taking reasonable precautions to prevent PM from becoming airborne. Such precautions can include, but are not limited to, using water or chemicals to control demolition dust and installing hoods, fans, and fabric filters to enclose and vent dust from handling of dusty materials. No person may cause or permit the discharge of visible fugitive dust emissions beyond the lot line of the property from which the emissions originated.

ACWA Facility Operations. During normal operations of any of the proposed pilot facilities at ANAD, air emissions would be expected from (1) boiler operations (emissions could include SO_2, NO_2, hydrocarbons [HCs], CO, and PM_{10}), (2) process stacks, (3) emergency generators (diesel), and (4) vehicle/traffic emissions. Under Alabama permitting procedures, if air pollutant emissions from a stationary source exceed certain regulatory limits (more than 250 tons/yr of any criteria pollutant, more than 10 tons/yr of any HAP, or 25 tons/yr of any combination of HAPs), then the source is a “major source” and must obtain an air permit.

Tables 4.5-4, 4.5-5, 4.5-6, and 4.5-7 show the estimated emissions of criteria pollutants to the atmosphere that would result from the operation of a pilot Neut/Bio, Neut/SCWO, Neut/GPCR/TW-SCWO, and Elchem Ox facility, respectively, in pounds per year. Tables 4.6-2, 4.6-3, 4.6-4, and 4.6-5 show the estimated toxic air pollutant emissions that would result from the operation of a pilot Neut/Bio, Neut/SCWO, Neut/GPCR/TW-SCWO, and Elchem Ox facility, respectively, in micrograms per second.

The emissions from any ACWA pilot facility alone would not be a major source. Nor would these emissions exceed the criteria for a significant net emissions increase. Therefore, the emissions would not constitute a major modification according to ANAD's existing operating permit. However, if an ACWA facility would emit more than 5 tons/yr of criteria pollutants or 1,000 lb/yr of HAPs, ANAD's Title V application would have to be amended to include the emissions from that new pilot facility.

ADEM has adopted the federal NSPS in its entirety (Admin. Code R. 335-3-10; 40 CFR 60). The only potential ACWA pilot facility equipment that would appear to fall within the adopted federal NSPS program would be the steam generating units. Under these regulations, a "steam generating unit" is a device that combusts any fuel and produces steam or heats water or any other heat transfer medium. The term includes any duct burner that combusts fuel and is a part of a combined-cycle system but does not include process heaters. Process heaters are devices that are primarily used to heat a material to initiate or promote a chemical reaction in which the material participates as a reactant or catalyst. As long as boilers are operated as process heaters, they do not need to meet the federal NSPS as adopted by ADEM.

Certain HAPs would be emitted from any of the potential ACWA pilot facilities at ANAD. However, none of the pilot facilities would be a major source of HAP emissions or fall under any of the EPA NESHAP regulated source categories, as adopted by ADEM (Admin. Code R. 335-3-11; 40 CFR 61). Therefore, no regulatory action under NESHAP would be necessary.

None of the raw materials stored and used at a pilot Neut/SCWO or Neut/GPCR/TW-SCWO facility would be regulated toxic substances under Section 112(r) of the CAA. The pilot Neut/Bio facility would use regulated toxic substances in its processes, including ammonia. Ammonia in concentrations of 20% or more is a listed regulated toxic substance under Section 112(r) of the CAA and has a regulatory threshold storage quantity of 20,000 lb (9,100 kg). In addition, nitric acid in concentration of 80% or more used in the Elchem Ox process is a listed regulated toxic substance under Section 112(r) of the CAA and has a threshold storage quantity of 20,000 lb (9,100 kg). In addition, nitric acid in concentrations of 80% or more used in the Elchem Ox process is a listed regulated toxic substance under Section 112(r) of the CAA and has a threshold storage quantity of 15,000 lb (6,800 kg). If regulated toxic substances in excess of regulatory threshold quantities would be stored on site, ANAD would have to prepare and submit a risk management plan (RMP). The plan would have to include (1) a worst-case release scenario and an accident history for the process; (2) demonstrate coordination for response actions with local emergency planning and response agencies; and (3) certify that the distance to the specified endpoint for the worst-case accidental release scenario for the process is

less than the distance to the nearest public receptor. Additional requirements would apply (1) if the site could not show that for the five years prior to the submission of the RMP, the process had not experienced an accidental release of a regulated substance that led to death, injury, response, or restoration activities for an exposure of an environmental receptor; and (2) if the site could not show that the distance to a toxic or flammable endpoint for a worst-case release assessment was less than the distance to any public receptor (40 CFR 68.12).

For construction of a facility in a nonattainment or maintenance area, a federal conformity determination is required if the total of direct and indirect emissions caused by construction of the facility would equal or exceed certain limits (40 CFR 51.853). However, since ANAD is located in an attainment area, and since any emissions from ANAD do not affect a Class I area, a separate federal conformity determination would not be required. Conformity with the Alabama air emissions regulations and SIP is a part of this EIS.

No Action. Continued storage at existing storage facilities is the no action alternative at ANAD. The principal sources of air emissions associated with continued storage would be exhaust emissions and road dust generated by vehicle movements. Potential air quality impacts from current storage activities would be expected to be minimal. Such emissions would have already been included in the total site calculation in the existing Title V permit application.

9.3.1.2 PBA

The PBA facility is located in Jefferson County in the state of Arkansas. ADEQ regulations apply to any air emissions from the PBA facility (ADEQ Regulations 18, 19, and 26). Jefferson County is in attainment or unclassified for all regulated criteria air pollutants (40 CFR 81.304).

Under ADEQ regulations, any major source is subject to permitting requirements (ADEQ Regulation No. 26, Section 26.302). A “major source” is any source that emits or has the potential to emit 100 tons/yr of any criteria pollutants, 10 tons/yr of any HAP, or 25 tons/yr of a combination of HAPs. PBA is a major source and currently holds an operating permit issued by ADEQ. A facility that holds an ADEQ operating permit must submit a permit modification application whenever there is a “significant modification” to an existing emission unit (ADEQ Regulation No. 26, Section 26.405). A “minor modification” is any change in a major stationary source that (1) increases emissions by less than 20% of the amount as given in the applicable definition of major source or 15 tons/yr of PM_{10} or 0.6 ton/yr of lead, whichever is less, or increases emissions of any regulated pollutant by less than 20% over any currently permitted emission rates; (2) does not violate any applicable requirement; (3) does not require significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit; (4) does not require or change either a case-by-case determination of an emission limit or other standard, a source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis; and (5) does not seek to establish or change a permit term or condition for

which there is no corresponding underlying applicable requirement but that the source has nevertheless assumed in order to avoid an applicable requirement to which it would otherwise be subject. (Two examples of such an applicable requirement are federally enforceable emission caps and alternative emission limits for HAPs.)

ADEQ also requires certain minor sources to obtain a permit. A hazardous waste TSDF is such a facility (ADEQ Regulation No. 18, Section 18.301). In granting a minor source permit, ADEQ requires the source to be constructed or modified so it can operate without resulting in a violation of applicable portions of Regulation No. 18 and without causing air pollution (ADEQ Regulation No. 18, Section 18.302), including visible emissions, odors, water vapor emissions, fugitive emissions, emissions from mobile sources, and open burning.

In Arkansas, the federal PSD program, with minor revisions and additional requirements, has been adopted as part of the SIP (ADEQ Regulation No. 19). Under those regulations, a major modification to an existing major source in an attainment area is subject to PSD review if the net emissions increase for any regulated pollutant exceeds the significant level for that pollutant (i.e., the level shown in Table 9.1). No major modification to an existing major source can begin until it has been shown the source will meet each applicable emission limitation under the SIP and each applicable limitation standard and standard of performance under federal NSPS and NESHAPs requirements. In addition, each major source must demonstrate that allowable emission increases from the proposed source, in conjunction with all other applicable emission increases or reductions (including secondary emissions), would not cause or contribute to air pollution in violation of any NAAQS or any applicable maximum allowable increase over the baseline concentration in any area. Such a demonstration is referred to as a "source impact analysis." Each application for a permit must also contain an analysis of ambient air quality in the area that would be affected by the proposed source. This "air quality analysis" must address each pollutant that the source could potentially emit in a significant amount. It must also address each pollutant for which a modification to the source would result in a significant net emissions increase. A "significant net emissions increase" is any rate of emissions that would equal or exceed the rates in Table 9.1. In addition, in Jefferson County, a Class II county, increases in pollutant concentrations over the baseline must be limited to the maximum allowable increase shown in Table 9.2. Concentrations of PM_{10} attributable to an increase in emissions that would result from construction or other temporary emission-related activities by a new or modified source are not included in determining compliance with a maximum allowable increase.

However, if the allowable emissions of a pollutant that would result from a major modification would not affect a Class I area or any area where an applicable increment is known to be violated, and the emission would be temporary, the source would not need to conduct a source impact analysis or an air quality analysis. The regulations do not contain a definition of "temporary."

ADEQ has a Title V permitting program that applies to all major sources. Under Title V permit regulations, all air emissions from a facility must be reported on the Title V application, except insignificant or trivial activities. "Insignificant or trivial activities" include a list of

specific emission units, operations, or activities but generally mean any air emissions or any air emission unit that has the potential to emit less than 5 tons/yr of any criteria pollutant or less than 1 ton/yr of any HAP (ADEQ Regulation No. 19, Appendix A).

Arkansas has revised its SIP to require conformity determinations for federal actions. The regulations apply only to nonattainment and maintenance areas for the criteria pollutants for which the area is designated (40 CFR 51.853).

ACWA Facility Construction. Air emission impacts would result from the initial construction activities for any of the proposed ACWA facilities at PBA. Air emissions from construction activities would include SO_2, NO_x, CO, and VOCs as well as PM, exhaust, and fugitive emissions from construction equipment and vehicles. Fugitive dust or visible emission standards and/or mitigation requirements might be applicable to such activities (ADEQ Regulation No. 18, Chapters 5 and 9). Under those, no person shall cause or permit visible emissions (other than uncombined water vapor) from equipment to exceed an opacity greater than 20% (ADEQ Regulation No. 18, Section 18.501(A)). However, these emission limits do not apply to the use of mobile and portable equipment used to clear, grade, or plow land or to the application of base or surface materials to roads, runways, parking lots, and similar facilities (ADEQ Regulation No. 18, Section 501(D)). In addition, no person shall cause or permit the handling, transporting, or storage of any material to be done in a manner that allows or may allow unnecessary amounts of air contaminants to become airborne. Furthermore, no person may cause or permit any building to be constructed, altered, used, repaired, or demolished without applying all such reasonable measures as may be required to prevent unnecessary amounts of PM from becoming airborne (ADEQ Regulation No. 18, Section 18.901).

ACWA Facility Operations. During normal operations of any of the proposed ACWA pilot facilities at PBA, air emissions would be expected from (1) boiler operations (including SO_2, NO_2, HC, CO, and PM_{10}), (2) process stacks, (3) emergency generators (diesel), and (4) vehicle/traffic emissions. Under Arkansas permitting procedures, if a major air emission source is modified, an application for modification must be filed. Tables 5.5-4, 5.5-5, and 5.5-6 show the estimated emissions of criteria pollutants to the atmosphere that would result from operation of a pilot Neut/SCWO, Neut/GPCRC/TW-SCWO, or Elchem Ox facility, respectively, in pounds per year. Tables 5.6-1, 5.6-2, and 5.6-3 show the estimated toxic air pollutant emissions that would result from operation of a pilot Neut/SCWO, Neut/GPCRC/TW-SCWO, or Elchem Ox facility, respectively, in micrograms per second.

The emissions from any of the proposed ACWA pilot facilities alone would not be a major source. However, even though the emissions from an ACWA facility would not exceed 20% of the applicable definition of a major source (15 tons/yr of PM_{10} or 0.6 ton/yr of lead, whichever is less) or would not represent a 20% increase over currently permitted rates for any regulated air pollutant, construction of such a facility might constitute a “significant modification” under Arkansas regulations, because either (1) new applicable requirements might

be required; (2) there could be a significant change to existing monitoring, reporting, or recordkeeping requirements under the existing permit; or (3) a case-by-case determination of an emission limit or other standard, a source-specific determination for a temporary source of ambient impacts, a visibility analysis, or an increment analysis could be required. In addition, even if a permit application as a major source or major modification was not required, a minor source permit application might be required because the ACWA facility would be a hazardous waste treatment facility (ADEQ Regulation No. 18, Section 18.301(B)). In addition, since the ACWA facility could emit more than 5 tons/yr of criteria pollutants or 1 ton/yr of HAPs, PBA's Title V application would have to be amended to include the emissions from the facility.

ADEQ has adopted the federal NSPS in its entirety (ADEQ Regulation No. 19, Section 19.304; 40 CFR 60). The only potential ACWA pilot facility equipment that would appear to fall within the adopted federal NSPS program would be the steam generating units. Under these regulations, a "steam-generating unit" is a device that combusts any fuel and produces steam or heats water or any other heat transfer medium. The term includes any duct burner that combusts fuel and is a part of a combined-cycle system but does not include process heaters. Process heaters are devices that are primarily used to heat a material to initiate or promote a chemical reaction in which the material participates as a reactant or catalyst. As long as boilers are operated as process heaters, they do not need to meet the federal NSPS as adopted by the ADEQ.

Certain HAPs would be emitted from any of the potential ACWA pilot facilities at PBA. However, none of the ACWA pilot facilities would be a major source of HAP emissions or fall under any of the EPA NESHAP regulated source categories, as adopted by ADEQ. Therefore, no regulatory action under NESHAP would be necessary. None of the raw materials stored and used at a pilot Neut/SCWO facility or Neut/GPCR/TW-SCWO facility would be regulated toxic substances under Section 112(r) of the CAA, so no RMP would be required to construct an ACWA facility. The pilot Elchem Ox facility would use hazardous chemicals in its processes, including nitric acid. Nitric acid in concentrations of 80% or more is a listed regulated toxic substance under Section 112(r) of the CAA. If 10,000 lb (4,530 kg) of anhydrous ammonia or 20,000 lb (9,070 kg) of ammonia at a concentration of 20% or more would be stored on site, PBA would have to prepare and submit an RMP. The plan would have to (1) include a worst-case release scenario and an accident history for the process; (2) demonstrate coordination for response actions with local emergency planning and response agencies; and (3) certify that the distance to the specified endpoint for the worst-case accidental release scenario for the process is less than the distance to the nearest public receptor. Additional requirements would apply (1) if the site could not show that for the five years prior to the submission of the RMP, the process had not experienced an accidental release of a regulated substance that led to death, injury, response, or restoration activities for an exposure of an environmental receptor; and (2) if the site could not show that the distance to a toxic or flammable endpoint for a worst-case release assessment is less than the distance to any public receptor (40 CFR 68.12).

For construction of a facility in a nonattainment or maintenance area, a federal conformity determination is required if the total of direct and indirect emissions caused by construction of

the facility would equal or exceed certain limits (40 CFR 51.853). However, since PBA is located in an attainment area, and since any emissions from PBA do not affect a Class I area, a separate federal conformity determination would not be required. Conformity with the Arkansas air emission regulations and SIP is a part of this EIS.

No Action. Continued storage at existing storage facilities is the no action alternative at PBA. The principal sources of air emissions associated with continued storage would be exhaust emissions and road dust generated by vehicle movements. Potential air quality impacts from current storage activities would be expected to be minimal. Such emissions would have already been included in the total site calculation in the existing Title V permit application.

9.3.1.3 PCD

The PCD facility is located in Pueblo County in the state of Colorado. CDPHE, Air Pollution Control Division, regulations would apply to air emissions from the PCD facility (5 CCR 1001-1 et seq.).

Under CDPHE regulations, all air pollution sources must obtain a construction permit unless they are specifically exempted. The permitting process requires submission of an air pollutant emission notice (APEN) and an application for a construction permit for the proposed air emission source. No APEN is required for emission sources with uncontrolled actual emissions of less than 2 tons/yr of any criteria pollutant. If a source is exempt from filing an APEN, no construction permit application is required either. In addition, a number of specific sources and categories of sources are exempt from filing an application for a construction permit (e.g., facilities with total facility uncontrolled actual emissions of less 5 tons/yr of VOCs, 5 tons/yr of PM_{10}, 10 tons/yr of total suspended particulates, 10 tons/yr of CO, 10 tons/yr of SO_2, 10 tons/yr of NO_x, and 200 lb/yr of Pb; emergency power generators that operate no more than 250 hours per year). Under CDPHE regulations, APENs are required for each individual emission point with uncontrolled actual emissions of Colorado noncriteria reportable pollutants that exceed de minimis levels (5 CCR 1001-1, Regulation 3, Part, Section II.B.3.b and Appendixes A and C thereto).

PCD submitted an APEN and a permit application to the CDPHE, Air Pollution Control Division, for the construction and operation of a Pueblo Chemical Agent Disposal Facility (Pueblo Depot Activity 1995). PCD is currently classified as a synthetic minor source that is bound by federally enforceable pollution control and/or operational restrictions on PCD's potential to emit from its various emission point categories (Fogleson 1997).

Under the Colorado PSD program, any major source or major modification to a source in an attainment area is required to undergo a PSD review. Under this program, a "stationary source" is defined as:

> "All of the pollutant-emitting activities that belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person."

Therefore, in determining if a source at PCD is a major stationary source for the purposes of PSD review, all pollutant-emitting activities that (1) belong to the same industrial grouping, (2) are located within the site boundaries, and (3) are under the control of the Army would have to be considered. Since the source, for PSD purposes, is essentially the entire site facility, the emission increases that would result from pollutant-emitting activities associated with the construction or modifications would be allowed to be offset by emission reductions elsewhere within the facility. PSD review might thus be avoided.

Under PSD requirements, a new major stationary source or a major modification of an existing major source must apply best available control technology (BACT) for each regulated pollutant. For major modifications of an existing source, this requirement applies to each proposed emission unit at which a net emissions increase for a pollutant would result from either a physical change in the unit or a change in the unit's method of operation. In addition, the owner of the proposed source or modification must demonstrate that allowable emission increases from the proposed source or modification, in conjunction with all other emission increases or reductions, will not cause or contribute to concentrations of air pollutants in the ambient air that would violate any state or national ambient air quality standard in the air quality control region or any applicable maximum allowable increase over the baseline concentration in any area. An analysis of ambient air quality must be performed for any area that would be affected by the proposed major stationary source or major modification and for each regulated pollutant that the source would emit or have the potential to emit. The analysis must be based on air quality monitoring data or existing representative air quality data. The objective of the analysis is to determine whether emissions of that pollutant would cause or contribute to a violation of an applicable standard or any maximum allowable increase. In addition, it must be determined the emissions would not affect a Class I PSD area. Great Sand Dunes National Monument, the Class I PSD area nearest to PCD, is 75 mi (121 km) away and is not located downwind of prevailing winds from PCD.

The PSD requirements, other than the use of BACT, do not apply to a major stationary source or a major modification if the emissions are from a temporary source and would not affect air quality in any Class I area or an area where an applicable increment is known to be violated (5 CCR 1001-1, Regulation 3, Part B, Section IV.D.3.b.(ii)). A "temporary source" is defined as a source that operates for no more than two years, unless the CDPHE Air Pollution Control Division determines that a longer time period is appropriate (5 CCR 1001-1, Regulation 3, Part A, Section I.B.59). Therefore, if a pilot ACWA facility at PCD would be designated as a temporary source by CDPHE, a full PSD review would not be necessary.

CDPHE has a Title V permitting program. PCD has submitted an application for a Title V permit; however, CDPHE has not issued one. Under Title V permit regulations, insignificant activities and emission levels do not need to be reported in the site's Title V permit application. These include any emission unit, including fugitive emissions, with the potential to emit 2 tons or less per year of any regulated air pollutant other than a HAP (5 CCR 1001-1, Regulation 3, Part C, Section II.E.3.a).

CDPHE has adopted the federal NESHAP and established its own requirements for asbestos and lead (5 CCR 1001-1, Regulation 8). The NESHAP apply only to sources of HAP emissions that are specifically regulated under the EPA NESHAP source categories (40 CFR 63) (e.g., gasoline distribution facilities, petroleum refineries).

Colorado has revised its SIP to require conformity determinations for federal actions (*Federal Register,* Volume 64, page 63206 [64 FR 63206]). The regulations apply only to nonattainment and maintenance areas for the criteria pollutants for which the area is designated (5 CCR 1001-1, Regulation 10).

ACWA Facility Construction. Air emission impacts would result from the initial construction activities for either of the proposed ACWA facilities at PCD (only Neut/Bio and Neut/SCWO are being considered). Air emissions from construction activities would include SO_2, NO_x, CO, and VOCs as well as PM and exhaust and fugitive emissions from construction equipment and vehicles. A permit is not required if a land development construction project involves less than 25 acres (10 ha) or takes less than six months to reach completion (5 CCR 1001-1, Regulation 3, Part A, Section II.D.1.j). If ACWA facility construction activities would disturb more than 25 acres (10 ha) at any one time, an APEN and construction permit application might have to be filed. In addition, fugitive dust emission standards and/or mitigation requirements would still apply (5 CCR 1001-1, Regulation 1). Emissions caused by indirect air pollution sources, emissions from internal combustion engines on any vehicle, and emissions resulting from temporary activities, such as construction or exploration, are not to be included in the basis calculation of emissions to determine if a source is a major source for permitting consideration (5 CCR 1001-1, Regulation 3, Part A, Section 59).

ACWA Facility Operations. During normal operations of either of the proposed ACWA pilot facilities at PCD (Neut/Bio or Neut/SCWO), air emissions would be expected from (1) boiler operations (including SO_2, NO_2, HC, CO, and PM_{10}), (2) process stacks, (3) emergency generators (diesel), and (4) vehicle/traffic emissions. Under Colorado permitting procedures, if air pollutant emissions from a stationary source exceed certain regulatory limits (more than 250 tons/yr of any criteria pollutant or 100 tons/yr of criteria pollutants from certain designated facilities; more than 10 tons/yr of any HAP or 25 tons/yr of any combination of HAPs), then the source is a "major source" and must obtain construction and operation permits. Tables 6.5-4 and 6.5-5 show the estimated emissions of criteria pollutants to the atmosphere that would result from operation of a pilot Neut/Bio and Neut/SCWO facility, respectively, in pounds

per year. Tables 6.6-1 and 6.6-2 show the estimated toxic air pollutant emissions that would result from operation of a pilot Neut/Bio and Neut/SCWO facility, respectively, in micrograms per second.

The emissions from any ACWA facility alone would not exceed the criteria pollutant or HAP permitting thresholds. Therefore, an ACWA pilot facility itself would not be a major source, and no permit would be required. However, if the additional emissions of criteria pollutants from an ACWA facility would result in the PCD installation exceeding the "synthetic minor source" limitations on its existing permit, any future modifications would be treated as a "major modification" under the netting provisions, thus requiring a PSD review. In addition, emissions from the ACWA facility or PCD would not affect Great Sand Dunes National Monument, the Class I PSD area nearest to PCD, because it is located 75 mi (121 km) away and is not located downwind of prevailing winds from PCD. Therefore, no PSD review would be necessary. However, a modification to the site's Title V application might be necessary, since the emissions would be over the "insignificant source" limits for Title V inventory reporting (i.e., 2 tons/yr of criteria pollutants or 100 lb/yr of lead).

All new facilities belonging to one of the 60 categories regulated by the CDPHE must meet NSPS. The only potential ACWA pilot facility equipment that would appear to fall under the NSPS program would be the steam generating units. Under CDPHE's NSPS regulations (5 CCR 1001-1, Regulation 8), which adopt the federal regulations of 40 CFR Part 60, Subpart D, a "steam generating unit" is a device that combusts any fuel and produces steam or heats water or any other heat transfer medium. The term includes any duct burner that combusts fuel and is a part of a combined-cycle system but does not include process heaters. Process heaters are devices that are primarily used to heat a material to initiate or promote a chemical reaction in which the material participates as a reactant or catalyst. As long as boilers are operated as process heaters, the pilot Neut/SCWO facility would not need to meet NSPS.

Certain HAPs would be emitted from either of the proposed ACWA pilot facilities. However, none of the ACWA pilot facilities would be a major source of HAP emissions or fall under any of the EPA NESHAP regulated source categories, as adopted by CDPHE. Therefore, no regulatory action under NESHAP would be necessary. Certain air pollutants emitted from an ACWA pilot facility would be Colorado noncriteria reportable pollutants (e.g., arsenic compounds). Therefore, an APEN would have to be filed to reflect these emissions if they exceeded de minimis levels (5 CCR 1001-1, Regulation 3, Section II.B.3.b, and CCR Appendix A).

None of the raw materials stored and used at the pilot Neut/SCWO facility at PCD would be regulated toxic substances under Section 112(r) of the CAA. The pilot Neut/Bio facility, however, would use hazardous chemicals in its processes, including ammonia. Ammonia in concentrations of 20% or more is a listed regulated toxic substance under Section 112(r) of the CAA. If 20,000 lb (9,100 kg) of ammonia at a concentration of 20% or more was stored on site, the site would have to prepare and submit an RMP. Such a plan must (1) include a worse-case release scenario and an accident history for the process, (2) demonstrate coordination of response

actions with local emergency planning and response agencies, and (3) certify that the distance to the specified endpoint for the worst-case accidental release scenario for the process is less than the distance to the nearest public receptor. Additional requirements would apply (1) if the site could not show that for the five years prior to submission of the RMP, the process did not experience an accidental release of a regulated substance that led to death, injury, response, or restoration activities for an exposure of an environmental receptor; and (2) if the site could not show that the distance to a toxic or flammable endpoint for a worst-case release assessment is less than the distance to any public receptor (40 CFR 68.12).

For construction of a facility in a nonattainment or maintenance area, a federal conformity determination is required if the total of direct and indirect emissions caused by construction of the facility would equal or exceed certain limits (40 CFR 51.853). However, since PCD is located in an attainment area, and since any emissions from PCD do not affect a Class I area, a separate federal conformity determination would not be required. Conformity with the Colorado air emission regulations and SIP is a part of this EIS.

No Action. Continued storage at existing storage facilities is the no action alternative at PCD. The principal sources of air emissions associated with continued storage would be exhaust emissions and road dust generated by vehicle movements. Potential air quality impacts from current storage activities would be expected to be minimal. Emissions caused by indirect air pollution sources, emissions from internal combustion engines on any vehicle, and emissions resulting from temporary activities, such as construction or exploration, are not to be included in the basis calculation of emissions to determine if a source is a major source for permitting consideration (5 CCR 1001-1, Regulation 3, Part A, Section 59). In addition, such emissions might be considered insignificant or might have already been included in PCD's Title V permit application.

9.3.1.4 BGAD

The BGAD facility is located in Madison County in the state of Kentucky. Cabinet regulations apply to any air emissions from BGAD (401 KAR 50 through 68). Madison County is in attainment or unclassified for all regulated criteria air pollutants (40 CFR 81.318).

Under Cabinet regulations, all new major air pollution sources, conditional major sources, and synthetic minor sources are required to use BACT, and minor sources that emit or have the potential to emit 25 tons/yr or more of regulated air pollutants without a specific method for achieving compliance are required to obtain a permit (401 KAR 50:035, Section 1). Minor sources that are not required to obtain a permit but that have the potential to emit more than 2 tons/yr of a HAP, 5 tons/yr of combined HAPs, or 10 tons/yr of any other regulated air pollutant are required to register with the Cabinet (401 KAR 50:035 Section 2(2)(a)). A "major source" is defined as a stationary source or a group of stationary sources, located on one property or contiguous or adjacent properties under the common control of the same person, belonging to

a single industrial grouping (1987 Standard Industrial Classification [SIC]), that emits or has the potential to emit, in aggregate, 10 tons/yr or more of a HAP, 25 tons/yr or more of a combination of HAPs (including fugitive emissions), or 100 tons/yr of criteria pollutants (not including fugitive emissions) (401 KAR 50:035, Section 1).

The Cabinet has a Title V permitting program that applies to all major sources, sources subject to Kentucky New Source Standards, and sources subject to federal NSPS or NESHAP regulations. Under Title V permit regulations, insignificant or trivial activities do not need to be reported in a site's Title V permit application. "Insignificant or trivial activities" are emission sources, including fugitive emissions, with the potential to emit one-half ton or less per year of combined HAPs or 5 tons of any other regulated air pollutant (401 KAR 52:020, Section 6(1)(a)). Because it is a minor source, BGAD has not submitted a Title V application to the Cabinet.

Under the Kentucky PSD program, any major source or significant modification to a major source in an attainment area is required to undergo a PSD review [401 KAR 51:017, Section 2]. Under this program, a "major source" is defined as (1) any stationary source that emits, or has the potential to emit, 250 tons/yr or more of an air pollutant subject to regulation under the CAA or (2) any physical change that would occur at a stationary source not otherwise qualifying under this subsection as a major stationary source, if the change would constitute a major stationary source by itself. Fugitive emissions are not included in determining if the source is a major stationary source for PSD review, unless the emissions belong to a designated pollutant category. For PSD review, a "stationary source" is a building, structure, facility, or installation that emits or may emit an air pollutant subject to regulation under the CAA. Therefore, in determining if a source is a major stationary source for the purposes of PSD review, all pollutant-emitting activities that (1) belong to the same industrial grouping, (2) are located within the site boundaries, and (3) are under the control of the Army have to be considered. R&D activities are considered a separate industrial grouping (401 KAR 50:035, Section 1(23)). Therefore, in determining if an R&D activity is a major source, air emissions form any other sources located on the installation are not included.

All new facilities belonging to specific source categories must meet NSPS. The Cabinet has adopted the federal NSPS in its entirety (401 KAR 60; 40 CFR 60). In addition, all new facilities belonging to one of the specified source categories regulated by the Cabinet must meet Kentucky new source standards. The Cabinet has established requirements for approximately 27 new source categories (401 KAR 59). The Cabinet has also adopted the federal NESHAP (401 KAR 57) and established its own requirements for asbestos (401 KAR 58). NESHAP applies only to those HAP emission sources that are specifically regulated under the EPA NESHAP source categories as adopted by the Cabinet (40 CFR 63) (e.g., gasoline distribution facilities, petroleum refineries).

The Cabinet has also established regulations for emissions of potentially hazardous matter or toxic substances (401 KAR 63:020). Under these regulations, anyone responsible for a source from which hazardous matter or toxic substances might be emitted must, when handling these materials, provide the utmost care and consideration to the potentially harmful effects of

the emissions that could result from such activities. No facility may emit potentially hazardous matter or toxic substances in quantities or for durations that could be harmful to the health and welfare of humans, animals, or plants. Evaluation of such facilities with regard to the adequacy of their emissions control measures and/or procedures and with regard to their emission potential is to be made on an individual basis by the Cabinet. "Potentially hazardous matter or toxic substances" are any matter that may be harmful to the health and welfare of humans, animals, and plants, including, but not limited to, antimony, arsenic, bismuth, lead, silica, and tin, and compounds of such materials.

ACWA Facility Construction. Air emission impacts would result from initial construction activities for any of the proposed ACWA pilot facilities at BGAD. Air emissions from construction activities would include SO_2, NO_x, CO, and VOCs as well as PM and exhaust and fugitive emissions from construction equipment and vehicles. Fugitive dust emission standards and/or mitigation requirements might apply to these emissions (401 KAR 63:010), and reasonable precautions to prevent PM from becoming airborne would have to be taken. Precautions would include, but not be limited to, using water or chemicals to control dust from demolition and construction operations, covering open-bodied trucks that transport materials likely to become airborne, and maintaining paved roadways in a clean condition. In addition, no person may cause or permit the discharge of visible fugitive dust emissions beyond the lot line of the property from which the emissions originate.

ACWA Facility Operations. During normal operations of a pilot Neut/Bio, Neut/SCWO, Neut/GPR/TW-SCWO, or Elchem Ox facility at BGAD, air emissions would be expected from (1) boiler operations (including SO_2, NO_2, hydrocarbons [HCs], CO, and PM_{10}), (2) process stacks, (3) emergency generators (diesel), and (4) vehicle/traffic emissions. Under Kentucky permitting procedures, if air pollutant emissions from a stationary source exceed certain regulatory limits (over 100 tons/yr of any criteria pollutant, 10 tons/yr of any HAP, or 25 tons/yr of any combination of HAPs), then the source is a "major source" and must obtain a permit. Tables 7.5-5, 7.5-6, 7.5-7, and 7.5-8 show the estimated emissions of criteria pollutants to the atmosphere that would result from operation of a pilot Neut/Bio, Neut/SCWO, Neut/GPCR/TW-SCWO, and Elchem Ox facility, respectively, in pounds per year. Tables 7.6-2, 7.6-3, 7.6-4, and 7.6-5 show the estimated toxic air pollutant emissions that would result from operation of a pilot Neut/Bio, Neut/SCWO, Neut/GPCR/TW-SCWO, and Elchem Ox facility, respectively, in micrograms per second.

Although BGAD currently emits less than 100 tons/yr of any regulated air pollutant and would not be required to obtain a permit as a major source, BGAD holds an operating permit issued by the Cabinet for certain older air sources. In addition, BGAD has registered certain minor air emission sources with the Cabinet over the years. None of the potential ACWA pilot facilities would emit air pollutants that alone would exceed the criteria pollutant or the HAP regulatory permitting thresholds. Therefore, none of the facilities would be a major source requiring a permit. Since BGAD is not a major source, construction of an ACWA facility would

not constitute a significant modification to a major source. However, since any ACWA pilot facility would have the potential to emit more than 2 tons/yr of criteria pollutants, it might have to register as a minor source with the Cabinet (401 KAR 50:035 Section (2)(2)(a)). In addition, the emissions from any ACWA pilot facility would have to be included in any future Title V application unless they are considered insignificant under Cabinet Title V regulations (e.g., 0.5 ton/yr of HAPs or 5 tons/yr of other regulated pollutants). Since none of the proposed ACWA facilities would be a major source or a significant modification to a major source, and emissions from none of the facilities would affect Mammoth Cave National Park (the Class I PSD area nearest to BGAD), no PSD review would be necessary.

An ACWA pilot facility could be a "new process operation" under Kentucky New Source Standards (401 KAR 59). New process operation standards require the control of particulate emissions from new process operations that are not subject to another particulate standard. "New process operations" include any method, form, action, operation, or treatment of manufacturing or processing, and any storage or handling of materials or products, before, during, or after manufacturing or processing (401 KAR 59:010). Under this standard, no continuous or intermittent fugitive emissions that are equal to or greater than 20% opacity are allowed from a control device or stack into the open air.

In addition, the Cabinet has adopted the federal NSPS in its entirety. The only potential ACWA pilot facility equipment that would appear to fall under the adopted federal NSPS program would be the steam generating units. Under these regulations, a "steam generating unit" is a device that combusts any fuel and produces steam or heats water or any other heat transfer medium. The term includes any duct burner that combusts fuel and is a part of a combined-cycle system but does not include process heaters. Process heaters are devices that are primarily used to heat a material to initiate or promote a chemical reaction in which the material participates as a reactant or catalyst. As long as boilers are operated as process heaters, they do not need to meet federal NSPS, as adopted by the Cabinet.

Certain HAPs would be emitted from any of the proposed ACWA pilot facilities at BGAD. However, none of the facilities would be a major source of HAP emissions or fall under any of the EPA NESHAP regulated source categories, as adopted by the Cabinet. Therefore, no regulatory action under NESHAP would be necessary for any of the ACWA pilot facilities. However, the Cabinet regulates sources that emit or may emit potentially hazardous matter or toxic substances when such emissions are not subject to other provisions of the Kentucky air regulations (401 KAR 63:020). If an ACWA facility would emit potentially hazardous matter or toxic substances (e.g., antimony, arsenic, bismuth, lead, silica, tin, or compounds of such materials), BGAD would have to provide the utmost care when handling these materials and consider the potentially harmful effects of the emissions that would result from such activities. It could not allow the facility to emit potentially hazardous matter or toxic substances in such quantities or durations that could be harmful to the health and welfare of humans, animals, or plants. The Cabinet's determination about the adequacy of controls and procedures and emission potential would be made on an individual basis.

None of the raw materials stored and used at the pilot Neut/SCWO facility or Neut/GPCR/TW-SCWO facility would be regulated toxic substances under Section 112(r) of the CAA. The pilot Neut/Bio facility would use hazardous chemicals in its processes, including ammonia. Ammonia in concentrations of 20% or more is a listed regulated toxic substance under Section 112(r) of the CAA and has a regulatory threshold storage quantity of 20,000 lb (9,100 kg). In addition, nitric acid in concentrations of 80% or more used in the Elchem Ox process is a listed regulated toxic substance under Section 112(r) of the CAA and has a threshold storage quantity of 15,000 lb (6,800 kg). If regulated toxic substances in excess of regulatory threshold quantities were stored on site, the site would have to prepare and submit an RMP. Such a plan must (1) include a worst-case release scenario and an accident history for the process, (2) demonstrate coordination of response actions with local emergency planning and response agencies, and (3) certify that the distance to the specified endpoint for the worst-case accidental release scenario for the process is less than the distance to the nearest public receptor. Additional requirements would apply (1) if the site could not show that for five years prior to the submission of the RMP, the process did not experience an accidental release of a regulated substance that led to death, injury, response, or restoration activities for an exposure of an environmental receptor; and (2) if the site could not show that the distance to a toxic or flammable endpoint for a worst-case release assessment is less than the distance to any public receptor (40 CFR 68.12, as adopted in 401 KAR 68).

For construction of a facility in a nonattainment or maintenance area, a federal conformity determination is required if the total of direct and indirect emissions caused by construction of the facility would equal or exceed certain limits (40 CFR 51.853). However, since BGAD is located in an attainment area, and since any emissions do not affect a Class I area, a separate federal conformity determination would not be required. Conformity with the Kentucky air emission regulations and SIP is a part of this EIS.

No Action. Continued storage at existing storage facilities is the no action alternative at BGAD. The principal sources of air emissions associated with continued storage would be exhaust emissions and road dust generated by vehicle movements. Potential air quality impacts from current storage activities would be expected to be minimal. Such emissions would be considered insignificant for inclusion in the site's Title V permit application.

9.3.2 *Emergency Planning and Community Right-to-Know Act of 1986* and *Hazardous Material Transportation Act* Requirements

Under the *Emergency Planning and Community Right-to-Know Act of 1986* (EPCRA or *Superfund Amendments and Reauthorization Act* [SARA] Title III) (42 USC 1101 et seq.), industrial facilities are required to provide information, such as inventories of the specific chemicals they use or store, to the appropriate State Emergency Response Commission and Local Emergency Planning Committee (LEPC) to ensure that emergency plans are sufficient to respond to accidental releases of hazardous substances. EPCRA originally did not appear to apply to

federal agencies. However, on August 3, 1993, Executive Order 12856 was issued, making each federal agency and its jurisdictional facilities subject to the provision of EPCRA and the *Pollution Prevention Act of 1990*. The application of EPCRA requirements to federal agencies was reiterated and strengthened in Executive Order 13148 (April 21, 2000), which replaced and revoked Executive Order 12856.

Under EPCRA, facilities with more than a threshold quantity of an "extremely hazardous substance" (40 CFR Part 355, Appendixes A and B) must provide a representative to the LEPC, promptly inform the LEPC of any "relevant changes" at the facility, and upon request, promptly provide the LEPC with "information . . . necessary for developing and implementing the emergency plan." Also, all covered facilities that exceed certain volume thresholds must provide an inventory of the types and quantities of hazardous materials they store or use on site to the LEPC (40 CFR Part 370). In addition, any facility that has released one of the listed extremely hazardous substances (e.g., ammonia) must make notification to a LEPC.

Extremely hazardous materials that would be stored and used in the pilot Neut/Bio facility include sulfuric acid and hydrogen peroxide, which have a planning and reporting storage/use threshold of 1,000 lb (454 kg), and ammonia, which has a reporting threshold of 100 lb (45 kg) and a planning threshold of 500 lb (227 kg). Nitric acid, which has a planning and reporting storage/use threshold of 1,000 lb (454 kg), would be stored and used in the pilot Elchem Ox facility. Therefore, if these extremely hazardous materials were stored and/or used the site in excess of the established thresholds, the site would have to comply with the requirements of EPCRA.

9.4 NOISE

9.4.1 Federal Requirements

Section 4 of the *Noise Control Act of 1972* (42 USC 4901 et seq.) directs all federal agencies to carry out programs in a manner that furthers a national policy of promoting an environment that is free from any noise that jeopardizes health or welfare. The EPA has not published regulations on noise levels from construction operations. However, the agency has issued guidelines for outdoor noise levels that are consistent with the protection of human health and welfare against hearing loss, annoyance, and activity interference (EPA 1974). Such guidelines state that undue interference with activity and annoyance will not occur if outdoor levels of noise are maintained at an energy equivalent of 55 dB. These levels are not to be construed as legally enforceable standards, however. Any noise that would result from the construction or normal operations of any of the proposed ACWA facilities would have to meet these guidelines.

9.4.2 Alabama Requirements

Alabama has no specific statutory restrictions on noise, other than for motor vehicles and water craft. Noise and nuisance restrictions are delegated to the local county or municipal governments.

9.4.3 Arkansas Requirements

Arkansas has no specific statutory restrictions on noise, other than for sport shooting ranges. Noise and nuisance restrictions are delegated to the local county or municipal governments.

9.4.4 Colorado Requirements

The *Colorado Noise Abatement Law* establishes maximum permissible noise limits for various classes of source areas. These limits are listed in Table 3.3.-1. Any noise resulting from the construction or normal operations of any of the proposed ACWA facilities would have to meet these guidelines.

9.4.5 Kentucky Requirements

The *Kentucky State Noise Control Act* imposes noise prohibitions (KRS 224.30). It mandates that no person shall emit beyond the boundaries of his or her property or from any moving vehicle any noise that unreasonably interferes with the enjoyment of life or with any lawful business or activity in contravention of any rule or regulation adopted by the Cabinet (KRS 224.30-050). No maximum permissible noise limits have been established by the Cabinet; however, the *Noise Control Act* allows for local governments to adopt noise control plans and enforce local noise control ordinances (KRS 224.30-175).

9.5 WATER RESOURCES

9.5.1 *Clean Water Act* and *Safe Drinking Water Act* Requirements

The federal *Clean Water Act* (CWA) (33 USC 1251 et seq.) provides that it is illegal to discharge pollutants from a point source into navigable waters of the United States except in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. According

to administrative and judicial interpretation, the navigable waters of the United States encompass any body of water whose use, degradation, or destruction would or could affect interstate or foreign commerce. These bodies of water include, but are not limited to, interstate and intrastate lakes, rivers, streams, wetlands, playa lakes, prairie potholes, mudflats, intermittent streams, and wet meadows. On January 9, 2001, the Supreme Court held in Solid Waste Agency of Northern Cook County (SWANCC) v. U.S. Army Corps of Engineers that the COE had exceeded the authority granted in Section 404 of the CWA to interpret the definition of navigable waters of the United States as it applies to "isolated waters" [121 S.Ct. 675 (2001)]. This program is administered by the Water Management Division of the EPA pursuant to regulations found in 40 CFR Part 122 et seq. Any state may administer its own permit program for discharges into navigable waters within its jurisdiction by submitting the state program to the EPA for approval (33 USC 1342(b)).

Sections 401 and 405 of the *Water Quality Act of 1987* added Section 402(p) to the CWA, which requires the EPA to establish regulations for issuing permits for storm water discharges associated with industrial activity. The language of the *Water Quality Act of 1987* that requires an NPDES permit for storm water discharge was codified into EPA regulations in 40 CFR 122.26 (54 FR 246, effective January 4, 1989). Pursuant to revised 40 CFR 122.26(a)(1)(ii), any storm water discharge associated with industrial activity or construction activity affecting more than 5 acres (2 ha) of land requires a NPDES permit application.

Pursuant to Section 404 of the CWA (33 USC 1344), there may be no discharges of dredged or fill material into waters of the United States (including rivers, streams, wetlands, and playa lakes) by or on behalf of any federal agency other than the U.S. Army Corps of Engineers (COE), without a permit issued pursuant to COE rules and regulations (33 CFR Parts 320–328). These regulations prescribe special policies, practices, and procedures to be followed by the COE in reviewing applications for such permits to authorize such discharges (33 CFR Parts 320, 323, and 325). In addition, Executive Order 11988, *Floodplain Management* (May 21, 1977), requires federal agencies to establish procedures to ensure that any actions undertaken in a floodplain consider the potential effects of flood hazards and floodplain management and to ensure that floodplain impacts are avoided to the extent practicable. Executive Order 11990, *Protection of Wetlands* (May 24, 1977), requires all federal agencies to consider protection of wetlands when making a decision about a proposed action. In issuing any dredge/fill permits, the COE must consider the impact that such an activity would have on floodplains and wetlands in accordance with Executive Orders 11988 and 11990 (33 CFR 320.4).

The primary objective of the *Safe Drinking Water Act* (SDWA) (42 USC 300(f) et seq.) is to protect the quality of public water supplies, water supply and distribution systems, and all sources of drinking water. Sections of the SDWA address public water systems, protection of underground sources of drinking water, emergency powers, general provisions, and additional requirements to regulate underground injection wells. The National Primary Drinking Water regulations (40 CFR Part 141 et seq.), administered by the EPA, establish standards applicable to public water systems. The regulations include maximum contaminant levels, including radioactivity levels, for community and noncommunity water systems. The SDWA also grants

emergency powers to the EPA Administrator to order immediate corrective action, including the provision of alternative sources of drinking water, upon discovering that a water system source has become contaminated enough to endanger human health and the environment (42 USC 300i).

9.5.1.1 ANAD

Alabama is an NPDES-delegated state with EPA-approved permitting authority. Any wastewater or storm water discharges from an ACWA facility at ANAD would have to comply with ADEM water discharge regulations (Admin. Code R. 335-6-6, et seq.). ANAD holds an ADEM-issued NPDES permit for the discharge of (1) treated water from its east area wastewater treatment plant (WWTP), (2) treated water from its industrial wastewater treatment plant (discharging through the same outfall as the WWTP), (3) treated groundwater from the plating shop building and remediation activities, and (4) storm water discharges from various areas on ANAD (NPDES Permit AL0002658). The permit allows the discharge of treated sanitary wastewater (combined with the treated industrial wastewater), treated groundwater, storm water, and noncontact cooling water to Choccolocco and Dry Cane Creeks.

A hazardous waste TSDF is an industrial facility under Alabama NPDES regulations. Storm water discharges from the ACWA site must be permitted, either under an individual facility permit or by submitting a notice of intent (NOI) to be included under one of ADEM's general permits for storm water discharge associated with an industrial activity.

ACWA Facility Construction. ADEM has established a general permit for storm water discharges associated with any construction activity that disturbs more than 5 acres (2 ha) of land. Construction of an ACWA facility at ANAD would disturb more than 5 acres (2 ha) of land. Applicants applying for coverage under this general permit must submit a NOI form to the Mining and Nonpoint Source Branch of the Field Operations Division. NOIs for the general permit for discharges from construction sites must be accompanied by a public notice in a newspaper having a local circulation. The Mining and Nonpoint Source Branch of ADEM also implements the Alabama regulations for controlling construction site sedimentation.

Construction of any of the proposed ACWA pilot test facilities at ANAD could affect wetlands in Site A. No wetlands occur in Sites B or C, although construction of utility corridors leading to these sites might affect wetlands where the corridors cross streams. A joint permit from the COE and ADEM is required if there is any discharge of dredged or fill material into wetlands or surface water (33 CFR 320). Certain activities are covered by COE nationwide permits and do not require an individual permit. These include utility line construction, road crossings, and outfall construction. If a nationwide permit applies and its conditions are met, no individual ADEM or COE permit is required.

Two sites (A and B) are located in the floodplains of streams crossing ANAD. Thus, construction of an ACWA facility could affect floodplains. COE regulations require consideration of impacts to floodplains before a permit can be issued for dredge and fill activities. Under Executive Orders 11988 and 11990, new construction cannot be located in wetlands or floodplains unless the head of the federal agency (in this case, the Army) finds (1) that there is no practicable alternative to such construction and (2) that the proposed action includes all practicable measures to minimize any harm to wetlands that might result from such use. In making this finding, the Army may take into account economic, environmental, and other pertinent factors.

In addition, if a RCRA TSDF is to be located in a 100-year floodplain, the facility must be designed, constructed, operated, and maintained to prevent washout of any hazardous waste by a 100-year flood, unless it can be demonstrated to ADEM that procedures are in effect that will cause the waste to be removed safely, before flood waters can reach the facility, to a location where the wastes will not be vulnerable to flood waters (Admin. Code. R. 335-14-5-.02(9)).

Although water usage during construction would increase over that under no action, it would not exceed the existing ANAD water supply system capacity; therefore, no SDWA regulatory action would be required.

ACWA Facility Operations. There would be no direct discharge of liquid process wastewater from any of the ACWA pilot facilities at ANAD. Almost all process waters would be recycled. However, sanitary wastewater associated with the ACWA facility would be discharged. It is anticipated that the capacity of the existing sanitary treatment plant is sufficient to accept these additional discharges and that only the addition of new sanitary sewer pipelines would be needed to accommodate the discharges. Therefore, no modification to the current NPDES permit should be necessary for ACWA facility-related sanitary wastewater. However, since storm water discharges are included in ANAD's existing NPDES permit, that permit might have to be amended to include new storm water discharges from the ACWA facility complex.

Although water usage by any of the proposed ACWA pilot facilities would involve an increase over existing water usage, usage would not exceed the capacity of the existing ANAD water supply system; therefore, no SDWA regulatory action would be required.

No Action. Storm water runoff from the existing storage areas is considered in the existing permit and associated storm water pollution prevention plan. The activities at the existing storage areas would not affect existing potable water consumption, and no additional water capacity would be required for continued storage.

9.5.1.2 PBA

Arkansas is an NPDES-delegated state with EPA-approved permitting authority. Any wastewater or storm water discharges from an ACWA facility at PBA would have to comply with ADEQ water discharge regulations (ADEQ Regulation No. 6). PBA holds an ADEQ-issued NPDES permit for discharges to surface water from the north area and south area sewage treatment plants. In addition, two industrial wastewater discharges are permitted: pretreated discharges from the National Center for Toxicological Research into the north area sewage treatment plant and pretreated discharges from the central wastewater treatment plant into a NPDES-permitted outfall (Outfall 011) (NPDES Permit AR0001678).

A hazardous waste TSDF is an industrial facility under Arkansas NPDES regulations. Storm water discharges from an ACWA facility would have to be permitted, either under an individual facility permit or by submitting an NOI to be included under one of ADEQ's general permits for storm water discharge associated with an industrial activity (ARR00A000). PBA's NPDES permit covers several specific storm water discharge outfalls. However, PBA has also filed an NOI to be included under the Arkansas general permit.

ACWA Facility Construction. ADEQ has established a general permit for storm water discharges associated with any construction activity that disturbs more than 5 acres (2 ha) of land. Construction of an ACWA facility at PBA would disturb more than 5 acres (2 ha) of land. Applicants applying for coverage under this general permit must submit an NOI to ADEQ's Water Division.

A large number of wetlands have been designated at PBA. Construction of any of the proposed ACWA pilot test facilities could affect wetlands. A joint permit from the COE and ADEQ is required if any dredged or fill material is discharged into wetlands or surface water (33 CFR 320). Certain activities are covered by COE nationwide permits and do not require an individual permit. These include utility line construction, road crossings, and outfall construction. If a nationwide permit applies and its conditions are met, no individual ADEQ or COE permit is required. The proposed ACWA construction sites are located above historical floodplains.

Although water usage during construction would increase over that under no action, it would not exceed the existing capacity of the PBA water supply system; therefore, no SDWA regulatory action would be required.

ACWA Facility Operations. There would be no direct discharge of liquid process wastewater from the pilot Neut/SCWO facility at PBA. Almost all process waters would be recycled. However, sanitary wastewater associated with the ACWA facility would be discharged. It is anticipated that the capacity of the existing sanitary treatment plant would be sufficient to

accept these additional discharges and that only new sanitary sewer pipelines would need to be added. Therefore, no modification to the current NPDES permit should be necessary for ACWA facility sanitary wastewater. However, since storm water discharges are included in PBA's existing NPDES permit, that permit may have to be amended to include new storm water discharges from the ACWA facility complex.

Although water usage for any of the proposed ACWA pilot facilities would involve an increase over existing water usage, usage would not exceed the capacity of the existing PBA water supply system; therefore, no SDWA regulatory action would be required.

No Action. Storm water runoff from the existing storage areas is considered in the existing permit and associated storm water pollution prevention plan. The activities at the existing storage areas would not affect existing potable water consumption, and no additional water capacity would be required for continued storage.

9.5.1.3 PCD

Colorado is an NPDES-delegated state with EPA-approved permitting authority; however, Colorado has not been delegated authority over federal facilities. Therefore, any NPDES permit for discharges at PCD would be granted by EPA Region 8. PCD holds a NPDES permit for the discharge of treated water from the interim corrective action groundwater remediation system (ICAGRS) (NPDES Permit CO-0034673). PCD once held a NPDES permit for the sanitary treatment plant. This facility is no longer in service, however, and the permit was allowed to lapse in 1999 (Cain 1999).

Storm water discharges may be regulated under either an individual facility permit or by submitting an NOI to be included under the Colorado general permit for storm water discharge associated with an industrial activity. In 1996, PCD submitted an NOI for storm water discharges associated with industrial activity under the NPDES general permit. That permit and the facility's storm water pollution prevention plan determine the management, monitoring, and limits for the outfalls for storm water discharges. The permit requires best management practices to be used to control or abate the discharge of pollutants through storm water outfalls.

The CDPHE regulates the allowable rate of depletion of groundwater that can occur in designated groundwater basins (2 CCR 410-1). The Supreme Court, in *Kansas vs. Colorado* (May 15, 1995, 514 U.S. 673 (1995), found that excess groundwater wells in Colorado materially depleted usable water flows to a level that was in violation of the Arkansas River Compact, which established an equitable apportionment of the waters of the Arkansas River. Therefore, Colorado must limit pumping from post-Compact wells to the maximum amount that can be pumped by wells that existed prior to the Compact. This requirement limits the amount of water

rights for pumping in the state of Colorado. PCD has negotiated to lease specific water rights (i.e., 1,000 acre-ft per year) for the 11 drinking water wells that support the site.

The CDPHE reviews and approves each application for using designated groundwater. It considers three criteria (the availability of water for appropriation, prevention of unreasonable impairment to the rights of other appropriators, and prevention of unreasonable waste) when deciding whether to grant or deny an application (2 CCR 410-1, Rule 5). Each well permit issued by the Colorado Division of Water Resources, Department of Natural Resources, indicates the well must be operated in accordance with established water rights, and no water rights are granted as a part of the granting of the permit. The well permits also indicate the specific use of the well (e.g., for drinking water or monitoring only). Therefore, any new drinking water wells or water usage in excess of the existing negotiated water rights would require the purchase or lease of additional water rights.

ACWA Facility Construction. The CDPHE, Water Quality Control Division, has established a general permit for storm water discharges associated with any construction activity that would disturb more than 5 acres (2 ha) of land (Permit COR-030000). Applicants applying for coverage under this general permit must submit an application 10 days before the anticipated date of discharge. If the applicant does not receive a request for additional information or a notification of denial from the division within 30 days of receipt of the application, authorization to discharge in accordance with the conditions of the permit is deemed to be granted.

Under the permit conditions, a storm water management plan must be prepared in accordance with good engineering, hydrologic, and pollution control practices. The plan must identify the best management practices that would be used to prevent or manage storm water runoff from the construction site (e.g., silt fences, strategically placed hay bales). The permit conditions also require final stabilization when all soil-disturbing activities at a site have been completed and reestablishment of uniform vegetation. Once the site has been stabilized, an Inactivation Notice must be submitted to the Water Quality Control Division.

Although water usage during construction of an ACWA facility at PCD would increase over the water usage under no action, usage would not exceed the existing PCD water rights or require the installation of additional wells; therefore, regulatory action would not be required.

ACWA Facility Operations. There would be no direct discharge of liquid process wastewater from either of the proposed ACWA pilot facilities at PCD. Almost all process waters would be recycled. However, sanitary wastewater associated with the ACWA facility would be discharged. It is anticipated that the additional sanitary wastewater would be discharged to the existing evaporative lagoon system. Since these lagoons do not discharge to surface waters, they do not require a water discharge permit. Although the lagoons are not regulated under the CWA, they might require a Certification of Designation as a solid waste disposal facility from the local governing body that authorizes the use of land for a solid waste disposal site or facility

(e.g., Pueblo County) and a technical review by CDPHE (6 CCR 1007-2, Section 1.3.3). If the lagoon system would need to be enlarged, an amended Certification of Designation would have to be submitted to Pueblo County and CDPHE.

Although water usage by either of the proposed ACWA pilot facilities at PCD would involve an increase over existing water usage, usage would not exceed the existing PCD water rights or require the installation of additional wells; therefore, it would not require any regulatory action.

No Action. Storm water runoff from the existing storage areas at PCD is via open drainage ditches that discharge to Chico and Haynes Creeks only after substantial precipitation (see Section 3.6.1.2). These ditches and discharges are covered in the existing permit and associated storm water pollution prevention plan. The activities at the existing storage areas would not affect existing potable water consumption. No additional water use permit or water treatment would be required for continued storage.

9.5.1.4 BGAD

Kentucky is an NPDES-delegated state with EPA-approved permitting authority. Any wastewater or storm water discharges from an ACWA facility at BGAD would have to comply with Cabinet water discharge regulations (401 KAR 5). BGAD holds a KPDES permit for the discharge of treated water from WWTPs and for storm water discharges (KPDES Permit KY0020737). The permit allows the discharge of treated sanitary wastewater and storm water to Hays Fork of Silver Creek, an unnamed tributary of Otter Creek, and Muddy Creek.

A hazardous waste TSDF is an industrial facility under the Kentucky NPDES regulations. Storm water discharges from an ACWA facility would have to be permitted, either under an individual facility permit or by submitting an NOI to be included under the Kentucky general permit for storm water discharge associated with an industrial activity. Currently, storm water discharges are covered in BGAD's individual NPEDS permit.

Under Kentucky regulations, a water withdrawal permit is required for any facility with an average withdrawal rate of more than 10,000 gal/d (38 m^3) (401 KAR 4:010). At sites where withdrawals are made on an irregular basis and at an irregular rate, permits might be required if the Cabinet, Division of Water, determines that the water withdrawn represents a significant portion of the available water supply or that the collection of withdrawal data is necessary for water resource planning.

ACWA Facility Construction. The Cabinet has established a general permit for any storm water discharges associated with construction activity that would disturb more than 5 acres (2 ha) of land. Applicants applying for coverage under this general permit must submit an NOI form to the Cabinet, Division of Water, at least 48 hours before the anticipated date of discharge. NOIs for construction sites must include a brief description of the project, an estimated timetable for major activities, estimates of the number of acres of soil that would be disturbed, and certification that the storm water best management practice plan for the site provides for compliance with (1) state or locally approved sediment and erosion control plans, (2) state or locally controlled storm water management plans, (3) state or local sewer use ordinances, and (4) state or local septic system requirements, including stabilization practices.

Construction of any of the proposed ACWA pilot test facilities at BGAD could affect some palustrine wetlands located in the project area, including transportation and utility rights-of-way. No wetlands would be directly affected from construction of the 22-acre (9-ha) site needed for facilities in Area A. Area B, however, includes three small wetlands that could be adversely affected. Runoff from the construction sites would be directed to a sedimentation pond, thus reducing the potential for any adverse impact on wetlands located along tributaries to Muddy Creek (see Section 7.17.2.1). A permit from the COE is required if dredged or fill material is discharged into waters of the United States (33 CFR 320 et. seq.). Certain activities are covered by COE nationwide permits and do not require an individual permit. These include utility line construction, road crossings, and outfall construction. The Cabinet has adopted the COE nationwide permits, either as written or with conditions. If the nationwide permit is adopted as written, an individual application for water quality certification does not need to be filed. However, if the nationwide permit is adopted with conditions, the conditions must be met. If they are not met, an individual application for water quality certification has to be filed. If the activity is not covered by a COE nationwide permit and if more than 1 acre (0.4 ha) of wetland would be lost or filled, BGAD would have to submit an application for water quality certification to the Cabinet. Under the *Guidelines for Stream and Wetland Protection in Kentucky* (Kentucky Department of Natural Resources undated), activities involving physical disturbances to streams and wetlands must be mitigated when impacts cannot be avoided by the site-specific project. Mitigation must address restoration of an aquatic ecosystem that is similar to the ecosystem being affected.

Although water usage during construction would increase over that under no action, usage would not exceed the capacity of the existing BGAD water supply system; therefore, no SDWA regulatory action would be required.

ACWA Facility Operations. There would be no direct discharge of liquid process wastewater from any of the proposed ACWA pilot facilities at BGAD. Almost all process water would be recycled. However, sanitary wastewater would be associated with the ACWA pilot facility complex. It is anticipated that the additional sanitary wastewater would be discharged to a newly constructed WWTP. Under Kentucky regulations, a permit is required for construction of a new WWTP (401 KAR 5:005). When construction is complete, the owner must submit written

certification to the Cabinet that the facility was constructed and tested in accordance with plans and specifications approved by the Cabinet, Division of Water, Facility Construction Branch. In addition, the existing NPDES permit has to be amended to include any new discharge from a new WWTP. Any storm water discharge from the ACWA facility complex could either be included in the existing NPDES permit or covered by filing an NOI under the Kentucky general permit for storm water discharges from industrial activities.

Although water usage by any of the ACWA pilot facilities would involve an increase over existing water usage, usage would not exceed the capacity of the existing BGAD water supply system; therefore, no SDWA regulatory action would be required.

No Action. Storm water runoff from the existing storage areas is included in the existing permit and associated storm water pollution prevention plan at BGAD. No additional regulatory action would be needed. The activities at the existing storage areas would not affect existing potable water consumption, and no additional water withdrawal permit or water treatment would be required for continued storage.

9.6 ECOLOGICAL RESOURCES

9.6.1 *Endangered Species Act* Requirements

The *Endangered Species Act* (16 USC 1531 et seq.) is intended to prevent the further decline of endangered and threatened species of animals and plants and to bring about the restoration of these species and their habitats. The act is jointly administered by the U.S. Department of Commerce (DOC) (which oversees marine species and their habitats under 50 CFR 223 and 224) and the U.S. Department of the Interior (DOI) (which oversees all other plant and animal species and their habitats). Section 16 of USC 1536 requires DOD to consult with the U.S. Fish and Wildlife Service (USFWS) in DOI, and/or the National Marine Fisheries Service in DOC, to determine whether endangered and threatened species are known to have critical habitats on or near any sites being considered for construction of an ACWA facility. Endangered and threatened species and their habitats are identified in 50 CFR Parts 17 and 402.

9.6.1.1 ANAD

The Alabama Department of Conservation and Natural Resources has implemented regulations for the protection of Alabama-designated protected species (Admin. Code R. 220-2-.92 and 220-2-.98). Under these regulations, it is unlawful to take, capture, kill, or attempt to take capture or kill specifically designated or federally protected nongame wildlife or invertebrate species (or any parts or reproductive products of such species) without a scientific

collection permit or written permit from the Commissioner, Department of Conservation and Natural Resources.

There are two colonies of Tennessee yellow-eyed grass, a federally endangered species, on ANAD. No other state protected species or threatened endangered species under federal law are known to occur within the installation (see Section 4.15). If a state- or federal-listed threatened or endangered species would be affected by the construction of a new ACWA facility, appropriate consultation and mitigation would have to be undertaken. Appendix D contains the initial consultation letter and a Biological Assessment for ANAD.

9.6.1.2 PBA

The Arkansas Game and Fish Commission has implemented regulations for the protection of federal and Arkansas-designated endangered species. Under these regulations, it is illegal to import, transport, sell, purchase, take, or possess any endangered species of wildlife or parts thereof (*Game and Fish Commission Code Book,* Section 19.12).

No impacts on protected species are anticipated from the construction of any of the proposed ACWA facilities at PBA. No federal endangered or threatened species are known to occur at PBA (see Section 5.15). Species determined by the Arkansas Natural Heritage Commission as state threatened or endangered have not been documented from wildlife and plant surveys of PBA. If a state- or federal-listed threatened or endangered species would be affected by the construction or operation of a new ACWA facility, appropriate consultation and mitigation would have to be undertaken.

9.6.1.3 PCD

Colorado has implemented regulations for the protection of Colorado-designated endangered and threatened species (*Division of Wildlife Regulations,* Chapter 10, Section 1000). Under this regulation, designated threatened or endangered species are protected, and their harassment, taking, or possession is illegal.

No federal- or state-listed threatened or endangered species are known to occur at PCD, so none would be affected by construction activities. Three federal candidate species could be affected by construction and habitat loss. Federally sensitive species that could be affected by habitat loss as a result of construction include the loggerhead shrike and the northern plains leopard frog. The southern red bellied dace, a Colorado state endangered species, would not be affected by construction or operation of a pilot test facility. No other state sensitive species are known to occur in the area. Construction could have an impact on the northern sandhill prairie community, which is classified as a sensitive community type by the Colorado Natural Heritage Program (1999). The shortgrass prairie habitat that supports a colony of black-tailed prairie dogs,

which is a candidate species being considered by the USFWS for listing as threatened, could be affected by construction activities. If a state- or federal-listed threatened or endangered species would be affected by the construction of a new ACWA facility, appropriate consultation and mitigation would have to be undertaken.

9.6.1.4 BGAD

Kentucky statutes prohibit the import, transport, and possession for resale of any endangered species (KRS 150.183). They define "endangered species" as any species of wildlife seriously threatened with worldwide extinction or in danger of being extirpated from the Commonwealth of Kentucky, including all species of wildlife designated as endangered species by the U.S. Secretary of the Interior on January 1, 1973. The Tourism Development Cabinet, Department of Fish and Wildlife Resources, issued regulations governing the possession, buying, and selling of endangered fish and wildlife (301 KAR 3:061). However, they govern species listed as endangered in DOI regulations (50 CFR 17) and do not govern species listed as threatened (301 KAR 3:061, Section 2). The Tourism Development Cabinet, Department of Fish and Wildlife Resources, has not established any state-designated endangered or threatened species. However, the Kentucky Nature Preserves Commission, in conjunction with the Natural Heritage Program, maintains a database of species classified as endangered, threatened, or of special concern. Remnants of two sensitive plan communities (the bluegrass mesophytic cane forest and calcareous mesophytic forest) occur on BGAD, along with a plant species of special concern (the spinulose wood fern).

The bald eagle and running buffalo clover are the only federally listed species known to occur at BGAD (see Section 7.16.1). The running buffalo clover could be adversely affected by construction of an ACWA pilot facility. Construction could also have a minor impact on bald eagle populations as a result of the increased amount of traffic at peak construction periods. If a federal-listed threatened or endangered species would be affected by the construction or operation of an ACWA facility, appropriate consultation and mitigation would have to be undertaken. Appendix E contains the initial consultation letter and a Biological Assessment for BGAD.

9.7 CULTURAL RESOURCES

Executive Order 11593, *Protection and Enhancement of the Cultural Environment* (May 15, 1971), requires federal agencies to locate, inventory, and nominate qualifying properties under their jurisdiction or control to the *National Register of Historic Places* (NRHP). This process requires federal agencies to provide the opportunity for the Advisory Council on Historic Preservation to comment on the possible impacts of alternative actions on any potentially eligible or listed resources.

9.7.1 *National Historic Preservation Act* and *Archaeological and Historic Preservation Act* Requirements

The *National Historic Preservation Act* (NHPA) (16 USC 470 et seq.) provides that places with significant national historic value be placed on the NRHP. No permits or certifications are required under this act. However, pursuant to regulations in 36 CFR Part 800 et seq., if a proposed action might affect a historic property resource, consultation with the State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation is required. Such consultation generally results in execution of a memorandum of agreement that includes stipulations that must be followed to minimize adverse impacts.

The *Archaeological and Historic Preservation Act* (AHPA) (16 USC 469a et seq.) is directed at the preservation of historic and archaeological data that would otherwise be lost as a result of federal construction. It authorizes DOI to undertake recovery, protection, and preservation of archaeological and historic data. If the Army determines that a proposed action might cause irreparable damage to archaeological resources, it must notify DOI in writing. The Army may then undertake recovery and preservation or may request that DOI undertake preservation measures.

9.7.1.1 ANAD

The Alabama Historical Commission has implemented regulations on the management of historical properties and archaeological sites (Admin. Code R. 460-X-1 et seq.). Generally the commission has adopted by reference the federal regulations (36 CFR Part 60) as its rule for nominating properties to the NRHP and for the subsequent management of listed properties. The chairperson of the commission serves as the Alabama SHPO. The commission has a program to register Alabama Landmarks and Heritage Sites, including buildings, structures, sites, objects, and districts of historical, architectural, and/or archaeological significance. The commission also has regulations on conducting archeological investigations, surveying, and testing.

During a survey conducted in 1984 at ANAD, no structures were found that would meet Army criteria for designation as important historical structures or that would meet eligibility criteria for the NRHP. The potential for disturbance of archaeological resources at ANAD is limited (see Section 4.17). If cultural material is unexpectedly encountered during ground-disturbing activities at previously disturbed or surveyed areas, construction must cease immediately, and the SHPO and a qualified archaeologist must be consulted to evaluate the significance of the cultural artifacts.

9.7.1.2 PBA

The Arkansas Historic Preservation Program, a division of the Department of Arkansas Heritage under the SHPO, is to cooperate with federal, state, and local governmental agencies in (1) surveying the state for historic properties to be included in the State or National Register of Historic Places, or both; (2) planning and conducting specific undertakings affecting historic properties and preservation objectives; and (3) conducting general overall planning for the use of land (ACA, Section 13-7-106). The SHPO is the director of the Arkansas Historic Preservation Program. The Arkansas Archaeological Survey was established for the purpose of statewide archaeological investigation and preservation (ACA, Section 13-7-105).

No archaeological resources have been identified within the proposed alternative construction areas for an ACWA facility at PBA (see Section 5.17.1). However, Site A has not been surveyed for cultural resources, and an archaeological survey might be required if sufficient confirmation of the level of disturbance cannot be provided. If cultural material is unexpectedly encountered during ground-disturbing activities at previously disturbed or surveyed areas, construction must cease immediately, and the SHPO and a qualified archaeologist must be consulted to evaluate the significance of the cultural artifacts. No PBA structures have been found to meet Army criteria for designation as important historical structures or to meet eligibility criteria for listing on the NRHP (see Section 5.17.1).

9.7.1.3 PCD

The Colorado Historical Society, Office of Archaeology & Historic Preservation, is responsible for implementing the federal and state Historic Register in Colorado. The president of the Colorado Historical Society, which is a division of the Colorado Department of Higher Education, is the Colorado SHPO. Applications for eligibility are reviewed by the Colorado Historic Preservation Review Board. In addition, a state archaeologist has been appointed to consult with and advise state and local governmental agencies on archaeological problems, inventory and analyze Colorado archaeological resources, and act as liaison in transactions between state agencies and other states or state agencies and the federal government concerning archaeological resources (CRS 24-80-405).

At PCD, the area where the ACWA facility would be located (G-Block) is a historic district covered by a programmatic agreement (PA) between the SHPO and the Army, and all stipulations of that PA would apply. However, there would be no adverse effect on the G-Block historic district from the construction and operation of an ACWA facility.

Some of the areas being considered for construction at PCD were previously surveyed for archaeological resources, and although certain sites were recorded, none of them were eligible for listing on the NRHP. Other areas under consideration have not been surveyed but are within a deeply disturbed area where the potential for finding intact archaeological remains that would

meet National Register eligibility criteria is low. Nevertheless, an archaeological survey of these areas might be required before the SHPO or state archaeologist would be able to concur with a determination of "no adverse effect."

9.7.1.4 BGAD

The Kentucky legislature established the State Heritage Council to preserve and protect Kentucky heritage, including buildings, structures, sites, and other landmarks associated with the archaeological, cultural, economic, military, natural, political, or social aspects of Kentucky's history (KRS 171.381). The executive director of the Kentucky Heritage Council is the Kentucky SHPO.

All the areas that could be affected by construction of an ACWA pilot facility at BGAD have not yet been surveyed for archaeological resources. Such surveys must be conducted before construction activities start. Upon completion of these surveys, the SHPO must concur with a determination of no adverse effect before construction can begin. At the sites that have been surveyed, no archaeological resources have been identified. If cultural material is unexpectedly encountered during ground-disturbing activities of previously disturbed or surveyed areas, construction must cease immediately, and the SHPO and a qualified archaeologist must be consulted to evaluate the significance of the cultural artifacts. The structures within the chemical storage area are potentially eligible as part of a BGAD historic district; however, none of these structures would be demolished or modified as a result of the construction of ACWA pilot facility (see Section 7.18.2.1).

9.7.2 *American Indian Religious Freedom Act* Requirements

The purpose of the *American Indian Religious Freedom Act* (AIRFA) (42 USC 1996) is to protect and preserve Native Americans' inherent right to believe, express, and protect their traditional religions, This right includes, but is not limited to, access to religious or traditional sites, use and possession of sacred objects, and freedom to worship through ceremonial and traditional rites. DOD would have to consult with all affected Native American groups should any cultural resources be identified at any proposed site under the alternative actions.

Also, the *Native American Graves Protection and Repatriation Act* (NAGPRA) and its corresponding regulations (43 CFR Part 10) require that whenever a person inadvertently discovers human remains, funerary objects, sacred objects, or objects of cultural patrimony on federal land, that individual must provide notification, with written confirmation, to the responsible Indian tribal official. Once an inadvertent discovery occurs, all activity must cease, and the area must be secured. Consultation between the responsible federal agency and the responsible Indian tribal officials must then occur.

9.7.2.1 ANAD

No traditional cultural properties are known to occur within the proposed construction areas at ANAD. Native American groups with historical interest in the Anniston area are being contacted as part of the NEPA analysis (see Section 4.17.1.2).

9.7.2.2 PBA

No traditional cultural properties are known to occur within the proposed construction areas at PBA. However, consultation with interested Native American governments regarding the proposed action might be necessary (see Section 5.17.1.2).

9.7.2.3 PCD

No traditional cultural properties are known to occur within the proposed construction areas at PCD. However, consultation with interested Native American governments regarding the proposed action might be necessary (see Section 6.17.1.2).

9.7.2.4 BGAD

No traditional cultural properties are known to occur within the proposed construction areas at BGAD. However, consultation with interested Native American governments regarding the proposed action might be necessary (see Section 7.17.1.2).

9.8 PRESIDENTIAL EXECUTIVE ORDERS

9.8.1 Environmental Justice

On February 11, 1994, President Clinton issued Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. This Executive Order, with its accompanying cover memo, calls on federal agencies to incorporate environmental justice as part of their missions, including decisions made in compliance with NEPA. Specifically, the President's cover memo mentions NEPA in two contexts:

> "Each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on

> minority communities and low-income communities, when such analysis is required by the National Environmental Policy Act of 1969 (NEPA), 42 USC Section 4321 et seq. Mitigation measures outlined or analyzed in an environmental assessment, environmental impact statement, or record of decision, whenever feasible, should address significant and adverse environmental effects of proposed Federal actions on minority communities and low-income communities. And,
>
> Each Federal agency shall provide opportunities for community input in the NEPA process, including identifying potential effects and mitigation measures in consultation with affected communities and improving the accessibility of meetings, crucial documents, and notices."

In May 1995, the EPA issued a document entitled *Environmental Justice Strategy: Executive Order 12898.* It establishes the EPA's commitment to adhere to the Executive Order. The EPA's Office of Solid Waste and Emergency Response (OSWER) established the Environmental Justice Action Agenda, which outlines the EPA's strategy for (1) developing a partnership with the public; (2) supporting health and environmental research; (3) collecting and analyzing data; (4) forming partnerships, conducting outreach, and communicating with stakeholders during CERCLA and brownfield projects; (5) providing financial and technical assistance to Indian tribal governments and Native Alaskan villages; and (6) integrating environmental justice into all EPA activities. OSWER Directive No. 9200.3-17, *Integration of Environmental Justice into OSWER Policy, Guidance, and Regulatory Development,* was issued on September 21, 1994, and the OSWER Environmental Justice Task Force was formed.

The analysis of environmental justice issues presented in the this EIS is in response to the requirements of this Executive Order. No new environmental justice issues would arise from ongoing activities at existing storage areas, so no action would need to be taken. Construction of a new ACWA facility would not have a disproportionately high and/or adverse impact on low-income and minority populations (see Sections 4.21, 5.21, 6.21, and 7.21).

On December 18, 1997, a group called SAFE (Serving Alabama's Future Environment), Elsie Boateng, Jacqueline Garard, the Sierra Club, and the Chemical Weapons Working Group filed a Complaint of Discrimination against ADEM with the EPA. However, the filing reached the EPA after the 180-day filing deadline and was consequently rejected. On June 29, 1999, a similar Complaint of Discrimination was filed against ADEQ with the EPA by a group called Pine Bluff for Safe Disposal, the Chemical Weapons Working Group, Evelyn Elaine Yates, Dale Muhammad, and Brainard Bivens. No action has been taken on this complaint. The complaints allege that people of African-American ancestry and of low income would be disproportionately harmed as a consequence of ADEM and ADEQ authorizing the operation of a chemical weapons incinerator at ANAD and PBA, respectively. The complaints ask the EPA Office of Civil Rights, pursuant to its duty under Executive Order 12898 and its own regulations (40 CFR 7.120 and 7.130), to exercise its jurisdiction to receive, investigate, and remedy complaints of discrimination on account of race under its own regulations (40 CFR 7.120 and 7.130). The

complaints ask that compliance be achieved through the denial of a permit for the chemical weapons incinerator.

9.8.2 Consultation and Coordination with Indian Tribal Governments

Executive Order 13084 (May 14, 1998) requires that federal agencies that formulate policies that significantly or uniquely affect Indian tribal governments be guided by principles of respect for Indian tribal self-government and sovereignty, for tribal treaty and other rights, and for responsibilities that arise from the unique legal relationship between the federal government and Indian tribal governments. The Executive Order requires each agency to have a process that permits elected officials and other representatives of Indian tribal governments to provide meaningful and timely input into the development of regulatory policies on matters that significantly or uniquely affect their communities.

Executive Order 13007 requires federal agencies, to the extent that is practicable and not inconsistent with essential agency functions, to accommodate access to sacred sites by Indian religious practitioners and to avoid adversely affecting sacred sites. Each federal agency must implement procedures to accommodate access, avoid adverse affects, facilitate consultation with religious leaders, and resolve disputes relative to sacred sites.

Should any of the activities arising from the construction and operation of an ACWA pilot facility significantly or uniquely affect an Indian tribal government, the process for permitting tribal government input would have to be employed.

9.8.3 Protection of Children from Environmental Health Risks and Safety Risks

Executive Order 13045 (April 21, 1997) requires each federal agency to make it a high priority to identify and assess environmental health risks and safety risks that might disproportionately affect children and to ensure that its policies, programs, activities, and standards address these disproportionate risks. For any substantive action in a rulemaking submitted to the Office of Management and Budget (OMB), Office of Information and Regulatory Affairs, for review pursuant to Executive Order 12866, the issuing agency must provide an evaluation of the environmental health or safety effects of the planned regulation and an explanation of why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the agency. This Executive Order requires an evaluation only for agency rulemaking activities before the OMB.

9.9 ARMY REQUIREMENTS

9.9.1 Chemical Agent Safety Program and Chemical Safety

AR 385-61 prescribes Army safety policy, responsibilities, and procedures for the Army Chemical Agent Safety Program. The associated Pamphlet 385-61 contains technical safety and health requirements for operations involving chemical agents and associated weapons systems. Implementation of Pamphlet 385-61 is mandatory. The regulation applies to the blister agents H, HD, HT, and L; the nerve agents GA, GB, GD, and VX; and other experimental chemical agents exhibiting toxicity similar to that of nerve or blister agents. In addition to the specific provisions contained in Pamphlet 385-61, it is recommended that hazard analysis, standard operating procedures, and good laboratory practices should be used to ensure safe research, development, test, and evaluation materials.

The regulation establishes (1) maximum credible event criteria and explosive quantity distance criteria for chemical agent operations, (2) administrative and work practice controls, (3) use of PPE and workplace monitoring, (4) agent exposure limits and measurements, (5) site and general construction plans and safety submissions, and (6) transportation requirements for chemical agents and munitions. Site plans, construction plans, safety submissions, and hazard-zone calculations for all proposed chemical agent and munitions operations must be submitted according to the U.S. Army Explosive Safety Program (AR 385-64).

Pamphlet 385-61 also establishes specific decontamination limits (Section 5.1). These limits are designated with "X" labels. The "X" is used for items that have been decontaminated; however, further decontamination is required before the items can be moved or before maintenance or repair can be performed without the use of chemical-protective clothing and equipment. The symbol "XXX (3X)" is used for items that have been surface decontaminated by locally approved procedures and bagged or contained in an agent container, and for which it has been verified that no concentrations of agent exist above established airborne exposure limits for that agent. The symbol "XXXXX (5X)" is used for items that have been decontaminated of the indicated agent to a level at which the total quantity of agent is less than the minimal health effects dosage determined by the Surgeon General and that may be released for general use or sold to the general public in accordance with all applicable federal, state, and local regulations. Management and disposal requirements in Pamphlet 385-61 are established on the basis of decontamination levels of the items (Sections 5.1 and 5.2). On-post transportation requirements are also established in the pamphlet (Section 10.7).

AR 50-6, *Chemical Surety*, establishes a system of safety and security control measures designed to provide protection to the local population, workers, and the environment by ensuring that chemical agent operations are conducted safely, chemical agents are secure, and personnel involved in those operations meet the highest standards of reliability. This regulation is applicable to (1) any chemical surety activities that are conducted in compliance with AR 385-61; (2) the storage, handling, maintenance, transportation, and inventory of chemical

agents; the treatment and disposal of chemical agent material; and (4) the emergency response to chemical agent incidents.

These regulations implement the Chemical Stockpile Emergency Preparedness Program (CSEEP), including the Chemical Accident or Incident Response and Assistance (CAIRA) program. Under these programs, each site that stores or handles chemical agent must have a CAIRA plan for providing an up-to-date, coordinated, and timely response for CAIRA operations. These emergency response plans cover on-site contingency planning and contingency operations for off-post/installation response coordinated with appropriate state and local government authorities and the Federal Regional Response Team. The construction of an ACWA facility at a site might require amendments to the CAIRA plan and hazard area response provisions.

9.9.2 Environmental Protection and Enhancement

AR 200-1, *Environmental Protection and Enhancement*, provides for the establishment of environmental programs and requirements at Army installations. It covers the implementation of federal, state, and local environmental laws and the integration of pollution prevention, natural and cultural resource management, and NEPA planning in installation activities. It provides for programs in water resources management, oil and hazardous substance spill prevention and response, hazardous materials management, hazardous and solid waste management, air emission controls, environmental noise management, asbestos management, radon reduction, pollution prevention, environmental restoration, environmental quality technology, and automated environmental management systems. Other environmental requirements and programs addressed include real property acquisition (e.g., outgranting and disposal transactions), construction site selection surveys, environmental training, and pest management.

9.9.3 Consideration of the Environmental Effects of Army Actions

AR 200-2 contains the Army's implementation requirements for NEPA. This regulation has been codified in its entirety in 32 CFR Part 651. It covers the integration of NEPA activities into Army planning, required records and documentation for Army actions, review categories for such actions (e.g., categorical exclusions, environmental assessments, EISs), and steps to be followed in preparing and processing an EIS.

9.10 CHEMICAL WEAPONS CONVENTION (CWC)

The CWC (the full title is *Convention on the Prohibition on the Development, Production, Stockpiling, and Use of Chemical Weapons and Their Destruction*) opened for signature on January 13, 1993, and entered into force on April 29, 1997. Each state party to the

CWC must undertake to destroy chemical weapons that it owns or possesses or that are located in any place under its jurisdiction or control (Article I). Under the CWC Annex on Implementation and Verification, each state party must submit to the Organization for the Prohibition of Chemical Weapons a detailed plan for destruction, covering the name and location of each existing or planned chemical weapons destruction facility and the types and approximate quantities of chemical weapons to be destroyed. Each state party must also provide the organization with information on the development of new methods for destroying chemical weapons and on the improvement of existing methods. Each state party must ensure that its chemical weapons destruction facilities are constructed and operated in a manner that ensures that the chemical weapons are destroyed and that the destruction process can be verified.

All locations at which chemical weapons are stored or destroyed are subject to systematic verification through on-site inspection and monitoring with on-site instruments, in accordance with the Annex on Implementation and Verification. Each state party must provide access to any chemical weapons destruction facility and its storage areas for the purpose of such verification inspection or monitoring (Article IV). Each state party must submit detailed plans for the destruction of chemical weapons no later than 60 days before each annual destruction period begins. Such plans must encompass all stocks to be destroyed during the next annual destruction period. In addition, each state party must certify, no later than 30 days after the destruction process has been completed, that all chemical weapons specified in the detailed plans for destruction have been destroyed. At the end of an active destruction phase, inspectors must take an inventory of the chemical weapons that have been removed from the storage facilities to be destroyed and verify the accuracy of the inventory of the chemical weapons remaining.

Each state party to the CWC must assign the highest priority to ensuring the safety of people and to protecting the environment during transportation, sampling, storage, and destruction of chemical weapons (Article IV).

All ACWA facilities would be designated as destruction facilities under the CWC and would have to comply with the requirements established therein.

9.11 REFERENCES FOR CHAPTER 9

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